

58TH ANNUAL MEETING

September 6-9, 2023

Seattle, Washington, USA



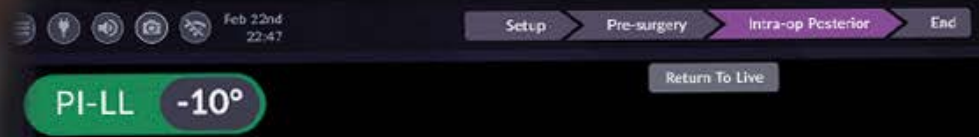
Preliminary Program



Scoliosis
Research
Society

Advanced Registration Deadline: August 10, 2023

www.srs.org/am23



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Dates to Remember

Housing Closes
August 4, 2023

Advanced Registration Closes
August 10, 2023

Cancellation Refund Deadline
August 10, 2023

58th Annual Meeting
September 6-9, 2023

Annual Meeting Venue

Hyatt Regency Seattle
808 Howell Street
Seattle, WA 98101 USA

Future Educational Events

Annual Meeting

59th Annual Meeting
September 11-14, 2024 | Barcelona, Spain

60th Annual Meeting
September 17-20, 2025 | Charlotte, NC, USA

61st Annual Meeting
October 7-10, 2026 | Sydney, Australia

International Meeting on Advanced Spine Techniques

31st IMAST
April 10-13, 2024 | San Diego, CA, USA

32nd IMAST
Announcement Coming Soon!

All information as of May 1, 2023.



Scoliosis Research
SOCIETY

SRS Executive Office 555 East Wells Street, Suite 1100 Milwaukee, WI 53202
P: 414.289.9107 F: 414.276.3349 info@srs.org www.srs.org

Seattle, Washington, USA

58TH ANNUAL MEETING
September 6-9, 2023

Annual Meeting Committees

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Local Host

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ZeZhang Zhu, MD, PhD

Welcome Letter

Dear Colleagues,

I would like to cordially invite you to Seattle, Washington USA this September for the 58th Annual Meeting for an information-packed discussion on research and practice improvements in spinal deformity care in the company of our colleagues and friends.

We have a stellar program comprised of the latest science in the field, presented as 150 podium presentations, 10 half-day course papers, 12 case discussions and 90 E-Point Presentations.

This year's program starts on Tuesday, September 5 with the Hibbs Society Meeting.

A "can't miss" session is the pre-meeting course on Wednesday, a Global Perspective on Spinal Deformity Care. Topics in this session include Diversity in Spinal Deformity Surgery, Impact of Scoliosis Around the World and Regional Variations in Scoliosis Surgery.

Thursday's Harrington Lecture features Oheneba Boachie-Adjei, MD, DSc, the President and Founder of the Foundation of Orthopedics and Complex Spine (FOCOS).

Other highlights include the industry workshops on Thursday. Each workshop is programmed by a single-supporting company and features presentations on topics and technologies selected by the company.

Among concluding highlights on Saturday are the Hibbs Award presentations and the transfer of the SRS Presidency to 2023 President, Marinus de Kleuver, MD, PhD.

We will also celebrate this year's inspiring program, member achievements, and our collaborative spirit at Friday's Farewell Reception at the Museum of Flight, the largest independent, non-profit air and space museum in the world.

Your visit to our city would not be complete without a stop at Pike's Place Market, the oldest continuously operating farmer's market in the country. And of course, the Space Needle, which was first designed on a cocktail napkin in 1961 as an inspiration for the 1962 World's Fair.

We hope these collective opportunities will make the 58th Annual Meeting an unforgettable experience for you.

Sincerely,



Rajiv K. Sethi, MD
Local Host



Meeting Information

Meeting Description

The Scoliosis Research Society Annual Meeting is a forum for the realization of the Society's mission and goals, to foster the optimal care of all patients with spinal deformities. Presentations at the Annual Meeting are given by leading experts in the field and have value for health care professionals who treat spinal deformities at all levels and in all ages. Over 150 papers will be presented on an array of topics, including adolescent idiopathic scoliosis, growing spine, kyphosis, adult deformity, trauma, neuromuscular scoliosis and tumors.

- During a five-year period, held in North America three times and outside North America twice
- Approximately 1,500 attendees
- The latest and greatest scientific research, methods and techniques in spinal deformity
- 4-day program including Pre-Meeting Course, podium papers, Half-Day Courses, Lunchtime Symposia and E-Point Presentations
- Podium presentations are four minutes in length
- Minimum two-year follow up required for abstract submissions
- Topics focus on current scoliosis and spinal deformity research

The Annual Meeting is open to anyone involved in the treatment of spinal deformities including spine surgeons, residents and fellows, physician assistants, nurses and other allied health professionals, and researchers. The presentations selected from over 1,100 submissions will provide valuable information to all individuals caring for patients with spinal deformities.

Target Audience

Spine surgeons (orthopaedic and neurological surgeons), residents, fellows, nurses, nurse practitioners, physician assistants, engineers, and company personnel.

Accreditation Statement

The 58th Annual Meeting has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the sponsorship of the Scoliosis Research Society (SRS). SRS is accredited by the ACCME to provide continuing medical education for physicians.

Credit Designation

SRS designates this live activity, 58th SRS Annual Meeting, for a maximum of 31 *AMA PRA Category 1 Credits*[™]. Physicians should claim only the credit commensurate with the extent of their participation in each activity.

Disclosure of Conflict of Interest

It is the policy of SRS to insure balance, independence, objectivity and scientific rigor in all of their educational activities. In accordance with this policy, SRS identifies conflicts of interest with instructors, content managers, and other individuals who are in a position to control the content of an activity. Conflicts are resolved by SRS to ensure that all scientific research referred to, reported, or used in a CME activity conforms to the generally accepted standards of experimental design, data collection, and analysis. Complete faculty disclosures will be included in the final program.

FDA Statement (United States)

Some drugs and medical devices demonstrated during this course have limited FDA labeling and marketing clearance. It is the responsibility of the physician to be aware of drug or device FDA labeling and marketing status.

Video Recording Prohibited

SRS does not allow personal video recording of the presentations of any kind. SRS holds the right to confiscate any and all recordings taken of any of the presentations. All session rooms will be recorded and will be available to delegates after the meeting on the Annual Meeting virtual platform.

Members Business Meeting

All SRS members are invited to the Member Business Meeting on Friday, September 8 from **12:05 - 13:35**. Agenda will include reports from the various SRS committees, updates on SRS activities and programs, and voting. Attendance at the Member's Business Meeting is an opportunity to not only hear updates, but actively participate in shaping the future of our Society. We encourage **ALL MEMBERS** to attend. A hot lunch will be provided.

Meeting Information

Insurance/Liabilities and Disclaimer

SRS will not be held liable for personal injuries or for loss or damage to property incurred by participants or guests at the Annual Meeting including those participating in tours, social events or virtually. Participants and guests are encouraged to take out insurance to cover loss incurred in the event of cancellation, medical expenses, or damage to or loss of personal effects when traveling outside of their own countries.

SRS cannot be held liable for any hindrance or disruption of the Annual Meeting proceedings arising from natural, political, social, or economic events, or other unforeseen incidents beyond its control. Registration of a participant or guest implies acceptance of this condition.

The materials presented at this Continuing Medical Education activity are made available for educational purposes only. The material is not intended to represent the only, nor necessarily best, methods or procedures appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement, or opinion of the faculty that may be helpful to others who face similar situations.

SRS disclaims any and all liability for injury or other damages resulting to any individual attending a scientific meeting and for all claims that may arise out of the use of techniques demonstrated therein by such individuals, whether these claims shall be asserted by a physician or any other person.

Language

Presentations and meeting materials will be provided in English.

No Smoking Policy

Smoking is not permitted during any Annual Meeting activity or event.

Attire

Business (suits) or business casual attire (polo or dress shirt, sport coats) are appropriate for all Annual Meeting sessions; ties are not required.

Industry Workshops

Delegates are encouraged to attend the industry workshops on Thursday, September 7 from **12:50 - 14:20**. Each workshop is programmed by a single-supporting company and features presentations on topics and technologies selected by the company. Lunch will be available during the workshops. CME credits are not available for workshops. Workshops will be hosted by DePuy Synthes, Globus Medical, Medtronic, NuVasive, SI-Bone, and ZimVie.

SRS Membership

Apply Today: www.srs.org/membership



Guest Lectures

Wednesday, September 6

Howard Steel Lecture



Ann Compton

Ann Compton has always been a pioneer. As the first woman assigned to cover the White House on network television and with 41 years on the air for ABC News, her longevity and impact are unparalleled. Compton's career spanned seven presidents and 10 presidential campaigns. President Barack Obama

announced her retirement when calling on her at a West Wing news conference saying, "Ann Compton, everybody here knows, is not only the consummate professional but is also just a pleasure to get to know."

Traveling with President George W. Bush on September 11, 2001, Ann was the only broadcast reporter allowed to remain on Air Force One to report on behalf of all the press during the chaotic hours following the terrorist attacks when the President was unable to return directly to Washington. For that coverage Compton received special recognition in the awards bestowed on ABC's coverage, including an Emmy, a Peabody, and the Silver Baton from the DuPont awards at Columbia University.

Her colleagues elected Compton as president of the White House Correspondents' Association for 2007-2008 and chair of the Radio-Television Correspondents' on Capitol Hill in 1987-1988. The Commission on Presidential Debates selected Compton to serve as a debate panelist in 1988 and 1992.

After retiring from daily coverage in 2014, Compton reignited her legendary career by returning to ABC to cover the 2016 political conventions, as well as accepting a fellowship at Harvard's Kennedy School of Government Institute of Politics focusing on media coverage of the 2016 election.

She has been inducted into six halls of fame and has received five honorary university degrees. Ann is married to Dr. William Hughes, a physician in Washington, D.C., and they are the parents of three sons and a daughter and the proud grandparents of nine.

Compton says her most valued award is a golden statuette bestowed by the National Mothers' Day committee naming her a "Mother of the Year" in 1988.

Thursday, September 7

Harrington Lecture



Oheneba Boachie-Adjei, MD, DSc

Prof. Oheneba Boachie-Adjei is the President and Founder of the Foundation of Orthopedics and Complex Spine (FOCOS). He completed his Secondary school education at Opoku Ware School in Kumasi and received a Bachelor of Science from Brooklyn college in NYC in 1976. He completed his medical education at Columbia University in 1980, an Orthopedic residency at the Hospital for Special Surgery (HSS) in New York in 1986 and a Spine fellowship at the Twin Cities Scoliosis Center in 1987.

Prof. Boachie-Adjei is an Emeritus Prof. of Orthopaedic Surgery at Weill Cornell Medical an emeritus chief of the Scoliosis Service at (HSS).

He received the Scoliosis Research Society (SRS) Russell Hibbs award for Best Clinical Paper in 1989, 2002 & 2013 and the Louis Goldstein Award for Best Clinical Poster in 1999 and 2002. He was named the HSS Philip D. Wilson Outstanding Teacher in 1998. He received the Distinguished Alumnus award in 2003 by Brooklyn College, the AAOS Humanitarian award in 2004, the SRS Blount Service Award in 2006 and the HSS Lifetime Achievement Award in 2013. He served as President of the SRS in 2008-2009. In 2015, he received an honorary doctorate by Brooklyn College. He was featured in the Discovery channel documentary "Surgery Saved My Life." and CNN's African Voices as the Surgeon transforming Spine Surgery in Ghana. In 2016 the University Of Toledo, Ohio inducted him into their Global Medical Mission Hall of Fame. In 2017-2021 he won eight more international awards.

Prof. Boachie-Adjei has published extensively on Spine surgery and is an inventor with several patents.

On the 19th November 2020 Nana Prof. was sworn in as Otumfuo Hiahene at the Manhyia palace in Kumasi. He is married to Hilda and they have 3 sons Kwadwo, Yaw and Kwame.

Award Recipients

SRS Awards

Walter P. Blount Humanitarian Award

Presented for outstanding service to those with spinal deformity and for generosity to the profession and Society.

2023 Blount Humanitarian Award Recipient

W. Fred Hess, MD

The 2023 Blount award will be presented on Wednesday, September 6.

Lifetime Achievement Award

Presented to members who have exhibited long and distinguished service to SRS and to spinal deformity research and care.

2023 Lifetime Achievement Award Recipient

Douglas C. Burton, MD

The 2023 Lifetime Achievement award will be presented on Thursday, September 7.

Annual Meeting Awards

Russell A. Hibbs Awards

Presented to the best basic science/translational research and clinical research papers at the Annual Meeting.

2022 Hibbs Award for Best Basic Science/Translational Research Paper Variants in Collagen Homeostasis Genes are Associated with Adolescent Idiopathic Scoliosis

Carol A. Wise, PhD; Anas M. Khanshour, PhD; Hao Yu, PhD; Aki Ushiki, PhD; Xiao-Yan Li, PhD; Nao Otomo, MD; Yoshinao Koike, MD; Elisabet Einarsdottir, PhD; Yan-Hui Fan, PhD; Lilian Antunes, PhD; Yared Kidane, PhD; Rory Sheng; Yichi Zhang, BS; Richa Singhanian, PhD; Jimin Pei, PhD; Nick Grishin, PhD; Bret Evers, MD, PhD; Jason Pui Yin Cheung, MD, MBBS, MS, FRCS; You-Qiang Song, PhD; John A Herring, MD; Christina Gurnett, MD, PhD; Paul Gerdhem, MD, PhD; Shiro Ikegawa, MD, PhD; Jonathan J. Rios, PhD; Stephen Weiss, PhD; Nadav Ahituv, PhD

2022 Hibbs Awards for Best Clinical Research Paper Curve Progression and Health Related Quality of Life (HRQoL) in Idiopathic Scoliosis: 40-Year Follow-Up From Diagnosis

Lærke C. Ragborg, MD; Casper Dragsted, MD, PhD; Soren Ohrt-Nissen, MD, PhD; Thomas B. Andersen, DMSc; Martin Gehrchen, MD, PhD; Benny T. Dahl, DMSc

The 2023 Hibbs Awards will be announced on Saturday, September 9.

John H. Moe and Louis A. Goldstein Awards

Presented to the best basic science/translational research and clinical research E-Posters at the Annual Meeting.

2022 John H. Moe Award for Best Basic Science/Translational Research Poster

Transforming Electronic Health Records (EHR) of Scoliosis Patients into Clinical Registries Using Natural Language Processing (NLP) and Computer Vision Methods

Shi Yan, MS; Elham Sagheb Hossein Pour, MS; Caroline Constant, DMV; Taghi Ramazanian, MD; Carl-Eric Aubin, PhD; Sunghwan Sohn, PhD; Hilal Maradit Kremers, MD; A. Noelle Larson, MD

2022 Louis A. Goldstein Award for Best Clinical Research Poster

Pre-Operative Carbohydrate Drink for Early Recovery in Pediatric Spine Fusion: Randomized Control Trial

Jennifer M. Bauer, MD; Kathryn B. Anderson, BS; Eliot B. Grigg, MD

The 2023 Annual Meeting Russell A. Hibbs Awards, the John H. Moe Award, and the Louis A. Goldstein Award will be presented on Saturday, September 9 during Session 9 from 8:00-10:10.

Location Information

About Seattle

Seattle is located on the Puget Sound in the beautiful Pacific Northwest and is Washington's largest city. Seattle is home to a large tech industry, and the futuristic Space Needle, a 1962 World's Fair legacy, its most iconic landmark.

Arriving in Seattle

Seattle-Tacoma International Airport (SEA) is the main airport in Seattle. SEA is located approximately 15 miles to Hyatt Regency Seattle (808 Howell Street).

Taxis or rideshares (Uber, Lyft) are commonly used and available at the airport.

The Link Light Rail is also available from the airport to downtown (Westlake Station). Westlake Station is two (2) blocks northeast of the hotel.

Passports and Visas

To enter the United States, international travelers are required to have a valid passport. A visa is required for the citizens of countries that do not have visa-exempt agreements with the U.S.

Please visit the [U.S. government travel site](#), to confirm if you would require a visa in entering the U.S.

Please contact your local United States Consulate to learn more about visa acquisition. Please note, SRS is unable to submit a visa application on the registrant's behalf. The decision to grant visas is at the sole discretion of the embassy/consulate. The meeting organizers cannot change the decision of the governmental agency should your application be denied.

Advance travel planning and early visa application are important. It is recommended that you apply early for your visa.

Climate

In early September, the average high-temperature in Seattle is 67°F (19.44°C), and the average low-temperature is 55°F (12.77°C).

Time Zone

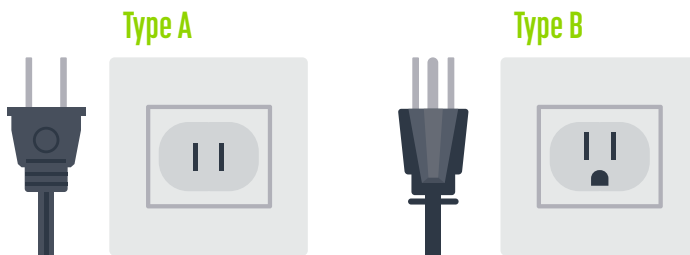
Seattle will be in the **Pacific Daylight Savings Time (PDT)** during the Annual Meeting, which is three (3) hours behind US Eastern Daylight Time (EDT) and eight (8) hours behind Greenwich Mean Time, GMT-8.

| City | Seattle | New York | London |
|------|---------|----------|--------|
| Time | (PDT) | (EDT) | GMT-8 |
| | 00:00 | 03:00 | 08:00 |
| | 03:00 | 06:00 | 11:00 |
| | 06:00 | 09:00 | 14:00 |
| | 09:00 | 12:00 | 17:00 |
| | 12:00 | 15:00 | 20:00 |
| | 15:00 | 18:00 | 23:00 |
| | 18:00 | 21:00 | 02:00 |
| | 21:00 | 00:00 | 05:00 |

ELECTRICITY

Seattle operates on a 110-120V (60 Hz) supply voltage. For the U.S. there are two associated plug types, types A and B.

- **Type A** = Two flat parallel pins
- **Type B** = Two flat parallel pins & a grounding pin



Registration Information

Key Dates

Housing Reservation Deadline

August 4, 2023

Advanced Registration Deadline

August 10, 2023

58th Annual Meeting in Seattle, Washington, USA

September 6-9, 2023

Registration Procedure

SRS encourages online registration: www.srs.org/am23/registration. If you forgot your SRS username or password, visit srs.execinc.com/edibo/LoginHelp to reset your username or password.

PDF registration form is available, download the form by visiting www.srs.org/am23/registration. Please complete and return to: meetings@srs.org.

Pricing

Meeting Pricing

| Registration Class | Advanced Registration <i>On or before August 10, 2023</i> | Onsite Registration <i>September 6-9, 2023</i> |
|--|--|---|
| SRS Member – Physician | \$1,050 | \$1,150 |
| SRS Member – Non-Physician | \$600 | \$700 |
| SRS Emeritus Member | \$600 | \$700 |
| Non-Member Physician | \$1,400 | \$1,500 |
| Non-Member Non-Physician | \$750 | \$850 |
| Resident / Fellow / Medical Student | \$550 | \$650 |
| Delegate from Reduced Rate Country * | \$550 | \$650 |
| Industry Representative | \$1,450 | \$1,550 |

*Click [here](#) for countries that qualify for reduced rate registration.

What is Included?

- Entrance to the pre-meeting course, half-day courses, lunchtime symposia and scientific sessions
- Admission to the opening ceremonies and industry workshops
- Meeting materials
- Refreshment breaks and lunch
- Certificate of attendance and CME credits
- Meeting app with audience response capabilities for an interactive meeting experience
- Meeting recordings, available 4-6 weeks following the meeting

Registration Information

Event Add-Ons

Event times are subject to change.

Hibbs Society Meeting - \$50

Tuesday, September 5

13:00-17:00

Available to meeting delegates for an additional fee of \$50

Over the years, the Russell A. Hibbs Society, formed in 1947 as an international travel club for continuing medical education and furthering orthopaedic knowledge, has held an educational meeting at the SRS Annual Meeting. These meetings address difficult and complex issues that do not lend themselves to the usual kind of scientific presentations. The meeting encourages interaction among international participants and highlights new ideas, new concepts, and reports on personal experience. The Hibbs Society Meeting is planned by the SRS Traveling Fellows and will highlight current concepts and controversies around optimization of care ranging from early-onset scoliosis to idiopathic scoliosis to adult deformity surgery.

Opening Ceremonies and Welcome Reception

Wednesday, September 6

Opening Ceremonies - 18:50-20:00

Welcome Reception - 20:00-22:00

Available at no charge to meeting delegates

The Annual Meeting will officially begin with the Opening Ceremonies and this year's Howard Steel Lecturer, Ann Compton. The Opening Ceremonies are the kick off to another wonderful meeting, giving the Society the opportunity to highlight award and research winners, thank our donors and corporate partners, and will include the presentation of the Walter P. Blount Humanitarian Award.

A hosted reception featuring hors d'oeuvres, cocktails, and reunions with colleagues and friends will follow the Opening Ceremonies.

If you have already registered and would like to add the Welcome Reception and/or purchase guest ticket(s), you may do so here: www.srs.org/am23/registration.

The Welcome Reception is supported, in part, by Globus Medical.

Early Career Surgeon Session

Thursday, September 7

17:50-18:50

Available at no charge to meeting delegates

The Early Career Surgeon Session is a part of SRS's recently developed Early Career Surgeon Program. This session features tips and tricks for the early career surgeon and offers a unique opportunity for SRS members and non-members to interact closely with a panel of experts through didactic case-based discussions. This session is open to all registered delegates, including those who are residents and fellows, and is followed by an early career surgeon social.

The Early Career Surgeon Session is supported, in part, by Medtronic, NuVasive, and Stryker.

Early Career Surgeon Social

Immediately following the Early Career Surgeon Session is an Early Career Surgeon Social hosted by Medtronic. The social will include light refreshments, beverages, and an opportunity to connect with colleagues and friends.

Farewell Reception - \$50

Friday, September 8

19:30-22:00

The Museum of Flight

Registered attendee: \$50; Guest(s) of registered attendee: \$150, per guest

Open to all registered attendees and guests of registered attendees. Registration is required and tickets must be purchased in advance. A limited number of tickets may be available onsite, but SRS urges delegates to purchase tickets at the time of registration.

If you have already registered and would like to add the Farewell Reception and/or purchase guest ticket(s), you may do so here: www.srs.org/am23/farewellreception.

Attire is business or cocktail.

Registration Information

Reduced Rate Country Registration

To view a list of countries that qualify for reduced rate registration, please visit www.srs.org/am23/registration

Individuals residing in the countries listed at the link above qualify for reduced registration rates. When registering online, delegates should automatically be placed in the correct registration class based on the details collected during sign-in process.

Wire Transfers

Registrants may pay for their Annual Meeting registration fees by wire transfer. Please note that some financial institutions charge a processing fee, which is deducted from the amount of the transfer. Partial payment may result in an incomplete registration. If you wish to pay with a wire transfer, please email meetings@srs.org for more information

Invitation Letters

Invitations letters for visa requests are available for registered delegates. Please visit www.srs.org/am23/registration/travel for more information on requesting a letter of invitation.

Cancellation Policy

Full refunds, less a 10% processing fee, will be granted for the cancellation meeting registrations until August 10, 2023. No refunds will be granted after August 10, 2023. Cancellation and refund requests should be sent in writing via email to meetings@srs.org or faxed to 414-276-3349. Delegates will receive a confirmation and refund within 14 days of receipt of their cancellation notice.

Questions

For registration questions, please contact the SRS Meetings team at meetings@srs.org.



*Thank you to our
ASLS Directed Research Partners:*
**Globus Medical, ISSGF,
Medtronic, NuVasive and Stryker!**

Housing Information

KEY DATES

Hotel Booking Opens.....May 2, 2023
Hotel Booking Deadline.....August 4, 2023

HEADQUARTER HOTEL

Hyatt Regency Seattle

808 Howell Street
Seattle, WA 98101, USA

A block of rooms is being held courtesy of the Scoliosis Research Society at the headquarter hotel and meeting venue, Hyatt Regency Seattle.

Room Rates

Single/Double Occupancy: \$279.00
Triple Occupancy: \$304.00
Quadruple Occupancy: \$329.00

Room rates are quoted exclusive of any applicable taxes (currently 15.6%), applicable services fees (currently \$2.00 tourism fee) and/or Hotel-specific fees, and any requested upgrades.

Room rates do not include breakfast.

Method of Reservation

Online Reservations: <https://www.hyatt.com/en-US/group-booking/SEARS/G-SPNE>

Reservation Department: +1-888-421-1442 or
+1-206-973-1234

Reservation Cancellations or Changes

All reservations, cancellations, and changes to reservations should be made directly through the Hyatt Regency Seattle. All cancellation and refund policies are at the discretion of the hotel.

Meeting attendees are responsible for making their own hotel reservations. Reservations can be made online at the link provided or by calling the hotel's reservation department and mentioning the group name, Scoliosis Research Society.

Attendees are encouraged to book their hotel reservations at the SRS headquarter hotel. Staying at the headquarter hotel not only allows attendees to take advantage of special discounted room rates, but also puts them in close proximity to all meeting events for maximum interaction with fellow attendees and faculty and a hassle-free experience. Additionally, booking in the block helps the Society avoid penalties for not filling its hotel block, which keeps meeting expenses and thus registration rates lower, and achieve a consistent hotel booking history that helps SRS continue to negotiate the lowest room rates possible for future meetings.

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SRS
2023

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SI-BONE[®]
Sacropelvic Solutions™

Meeting Outline *Subject to change*

| Monday, September 4, 2023 | |
|-------------------------------------|---|
| 08:00-17:00 | SRS Board of Directors Meeting* |
| Tuesday, September 5, 2023 | |
| 07:00-08:00 | Committee Chair Breakfast* (by invitation only) |
| 08:00-17:00 | Committee and Council Meetings* |
| 12:00-17:00 | Registration Open* |
| 13:00-17:00 | Hibbs Society Meeting |
| 18:30-21:30 | SRS Leadership Dinner* (by invitation only) |
| Wednesday, September 6, 2023 | |
| 06:30-20:30 | Registration Open* |
| 07:30-12:00 | Pre-Meeting Course |
| 12:00-12:20 | Lunch Pick-up* |
| 12:20-13:20 | Lunchtime Symposia (3 Concurrent Sessions) |
| 13:20-13:40 | Break* |
| 13:40-15:10 | Abstract Session 1 Adult Spinal Deformity |
| 15:10-15:30 | Break* |
| 15:30-17:15 | Abstract Session 2 Adolescent Idiopathic Scoliosis |
| 17:15-17:35 | Break* |
| 17:35-18:35 | Case Discussions (3 Concurrent Sessions) |
| 18:35-18:50 | Break* |
| 18:50-22:00 | Opening Ceremonies and Welcome Reception* |
| Thursday, September 7, 2023 | |
| 07:00-18:00 | Registration Open* |
| 08:00-09:50 | Abstract Session 3 Quality, Safety, Value, Complications |
| 09:50-10:10 | Break* |
| 10:10-12:15 | Abstract Session 4 Adolescent Idiopathic Scoliosis and Harrington Lecture |
| 12:15-12:50 | Lunch Pick-up* |
| 12:50-14:20 | Industry Workshops* (6 Concurrent Sessions) |
| 14:20-14:40 | Break* |
| 14:40-17:20 | Half-Day Courses (3 Concurrent Sessions) |
| 17:20-17:30 | Break* |
| 17:30-17:45 | SRS Membership Information Session* |
| 17:45-17:50 | Break* |
| 17:50-18:50 | Early Career Surgeon Session |
| 18:50 | Early Career Surgeon Social*, Hosted by Medtronic |

*non-CME activity

Meeting Outline Subject to change

| Friday, September 8, 2023 | |
|------------------------------------|---|
| 07:00-08:00 | Past President's Breakfast* (by invitation only) |
| 07:00-17:00 | Registration Open* |
| 08:00-09:50 | Abstract Session 5 Hibbs Award-Nominated Papers |
| 09:50-10:10 | Break* |
| 10:10-11:45 | Abstract Session 6 Cervical Deformity and Presidential Address |
| 11:45-12:05 | Lunch Pick-up* |
| 12:05-13:35 | Member Business Meeting and Lunch* Lunchtime Symposium 4 |
| 13:35-13:55 | Break* |
| 13:55-15:40 | Abstract Session 7A Adult Spinal Deformity Abstract Session 7B AIS and ASD Controversies |
| 15:40-16:00 | Break* |
| 16:00-17:45 | Abstract Session 8 EOS, Kyphosis, and Basic Science |
| 18:30-19:30 | President's Reception* (by invitation only) |
| 19:30-22:00 | Farewell Reception* (tickets required) |
| Saturday, September 9, 2023 | |
| 07:00-08:00 | SRS Board of Directors Meeting* |
| 07:30-11:00 | Registration Open* |
| 08:00-10:10 | Abstract Session 9 Miscellaneous, Hibbs Award Presentation, and Transfer of Presidency |
| 10:10-10:30 | Break* |
| 10:30-11:55 | Abstract Session 10 Neuromuscular and Miscellaneous |
| 11:55 | SRS 58 th Annual Meeting Concludes |

*non-CME activity



INTERNATIONAL MEETING
ON ADVANCED SPINE TECHNIQUES

San Diego, CA, USA
April 10-13, 2024

SAVE THE DATE



Program (topics, timing, and faculty) are preliminary and subject to change.

13:00 - 17:00

Hibbs Society Meeting

Chairs: Steven W. Hwang, MD, Michelle C. Welborn, MD, Hamid Hassanzadeh, MD & Robert W. Gaines, MD

13:00 - 14:15

Hibbs Society 1 | Early Onset Scoliosis

Moderator: Michelle C. Welborn, MD

- 13:00 - 13:05 **Welcome and Background on Hibb's Society**
Robert W. Gaines, MD
- 13:05 - 13:07 **Introduction**
Michelle C. Welborn, MD
- 13:07 - 13:15 **Bracing vs. Casting Can We Cure Patients with Infantile Scoliosis**
Stuart L. Weinstein, MD
- 13:15 - 13:23 **Orthosis as a Temporizing Measure vs. a Primary Treatment**
M. Timothy Hresko, MD
- 13:23 - 13:31 **Casting and Bracing 2.0 How to Modify for Alternative Populations**
G. Ying Li, MD
- 13:31 - 13:41 **Case Discussion**
- 13:41 - 13:49 **Ideal Age of Index Surgical Treatment Is Anytime a Good Time?**
Jason Pui Yin Cheung, MD, MBBS, MS, FRCS
- 13:49 - 13:57 **Growth Guidance vs Distraction Based vs Other Picking the Right Construct for the Right Kid**
Patrick J. Cahill, MD
- 13:57 - 14:05 **When Is Good Enough, Good Enough Pulling the Trigger on Fusion**
Suken A. Shah, MD
- 14:05 - 14:15 **Case Discussion**

14:15 - 15:25

Hibbs Society 2 | Adolescent Idiopathic Scoliosis

Moderator: Steven W. Hwang, MD

- 14:15 - 14:17 **Introduction**
Steven W. Hwang, MD
- 14:17 - 14:19 **Case Presentation: VBT vs Fusion: When Is Each Option Better?**
Steven W. Hwang, MD
- 14:19 - 14:25 **When is VBT Best?**
Amer F. Samdani, MD
- 14:25 - 14:31 **When is Fusion Best?**
Daniel J. Sucato, MD, MS
- 14:31 - 14:37 **When to do Both or Hybrid?**
Ahmet Alanay, MD
- 14:37 - 14:50 **Case Discussion**
- 14:50 - 14:52 **Case Presentation: Have We Made Any Progress in AIS Surgery?**
Steven W. Hwang, MD
- 14:52 - 14:57 **Have Indications for Selective Thoracic Fusions Changed?**
Meric Enercan, MD
- 14:57 - 15:02 **Should We Avoid Selective Fusions**
Muharrem Yazici, MD

Annual Meeting Preliminary Program

Tuesday, September 5, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

- 15:02 - 15:07 **Ponte's and Apical Discectomies Are Enough**
Suken A. Shah, MD
- 15:07 - 15:12 **There Is Still a Role for 3 Column Osteotomies in AIS**
Lawrence G. Lenke, MD
- 15:12 - 15:25 **Case Discussion**

15:25 - 15:45

Refreshment Break

15:45 - 17:00

Hibbs Society 3 | Adult Spinal Deformity

Moderator: *Hamid Hassanzadeh, MD*

- 15:45 - 15:47 **Introduction**
Hamid Hassanzadeh, MD
- 15:47 - 15:54 **Adult Spinal Deformity Patient; Should We Always Fuse to the Pelvis?**
Khaled M. Kebaish, MD
- 15:54 - 16:01 **Adult on Idiopathic vs. Degenerative Scoliosis: How Different Are They?**
Lawrence G. Lenke, MD
- 16:01 - 16:08 **Adult Patients With Prior AIS Surgery**
Michael P. Kelly, MD
- 16:08 - 16:18 **Case Discussion**
- 16:18 - 16:25 **Risk Stratification in Elderly Deformity Patients, When to Say No**
Christopher I. Shaffrey, MD
- 16:25 - 16:32 **How to Measure Success and Failure in Adult Spine Deformity Surgery**
Shay Bess, MD
- 16:32 - 16:39 **Best Approach: Is There a Role for Anterior Surgery?**
Munish C. Gupta, MD
- 16:39 - 16:46 **High Grade Spondy**
Robert W. Gaines, MD
- 16:46 - 16:56 **Case Discussion**
- 16:56 - 17:00 **Concluding Remarks**
Robert W. Gaines, MD

18:30 - 21:30

Leadership Dinner (by invitation only)

Annual Meeting Preliminary Program

Wednesday, September 6, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

07:30 - 12:00

Pre-Meeting Course

A Global Perspective on Spinal Deformity Care

Chairs: Mark A. Erickson, MD & Charla R. Fischer, MD

07:30 - 07:35

Course Welcome

Mark A. Erickson, MD & Charla R. Fischer, MD

07:35 - 08:13

Part 1 - Diversity in Spinal Deformity Surgery

Moderators: Ali A. Baaj, MD & Benjamin Daniel Elder, MD, PhD

07:35 - 07:50

Diversity in Spine Surgery I

Qusai Hammouri, MD, MBBS

07:50 - 08:05

Diversity in Spine Surgery II

Megan Johnson, MD

08:05 - 08:13

Discussion

08:13 - 09:35

Part 2 - Impact of Scoliosis Around the World

Moderators: Luiz Müller Avila, MD & Eren O. Kuris, MD

08:13 - 08:15

Transition to Part 2

Luiz Müller Avila, MD & Eren O. Kuris, MD

08:15 - 08:27

Scoliosis in Latin America

Karen A. Weissmann, MD, PhD

08:27 - 08:39

Impact of Scoliosis in India

Sajan K. Hegde, MD

08:39 - 08:51

Consensus on Idiopathic EOS Management Among EPOS Members

Brice Ilharreborde, MD, PhD

08:51 - 09:01

Discussion

09:01 - 09:13

Effect of Scoliosis in Turkey

Ahmet Alanay, MD

09:13 - 09:25

Consensus on Non-idiopathic EOS Management Among EPOS Members

Ilkka J. Helenius, MD, PhD

09:25 - 09:35

Discussion

09:35 - 10:00

Refreshment Break

10:00 - 10:58

Part 3 - Regional Variations in Scoliosis Surgery

Moderators: A. Noelle Larson, MD & Brian J. Neuman, MD

10:00 - 10:02

Transition to Part 3

A. Noelle Larson, MD & Brian J. Neuman, MD

10:02 - 10:12

Scoliosis Treatment in Brazil

Alexandre Fogaca Cristante, FRCS(C)

10:12 - 10:22

Treatment of Spinal Deformity in South Korea

Yongjung J. Kim, MD

10:22 - 10:30

Discussion

Seattle, Washington, USA

58TH ANNUAL MEETING
September 6-9, 2023

Annual Meeting Preliminary Program

Wednesday, September 6, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

- 10:30 - 10:40 **Spinal Deformity Surgery in Japan**
Mitsuru Yagi, MD, PhD
- 10:40 - 10:50 **Addressing Spinal Deformity in Political Conflict (Palestine)**
Alaaeldin Azmi Ahmad, MD
- 10:50 - 10:58 **Discussion**

10:58 - 12:00

Part 4 - Effect of SRS and Mission Work Around The World

Moderators: *Alpaslan Senkoylu, MD & Byron F. Stephens, MD*

- 10:58 - 10:59 **Transition to Part 4**
Alpaslan Senkoylu, MD & Byron F. Stephens, MD
- 10:59 - 11:09 **Impact of SRS Global Courses**
Andre Luis Andujar, MD
- 11:09 - 11:19 **Impact of SRS Hands on Course**
Kenny Yat Hong Kwan, BMBCh(Oxon), FRCSEd
- 11:19 - 11:27 **Discussion**
- 11:27 - 11:37 **Developing Medical Missions**
Emmanuel N. Menga, MD
- 11:37 - 11:47 **Long Term Perspectives on Medical Mission Work**
Gregory M. Mundis Jr., MD
- 11:47 - 11:55 **Discussion**
- 11:55 - 12:00 **Closing Comments**
Mark A. Erickson, MD & Charla R. Fischer, MD

12:00 - 12:20

Lunch Pickup

12:20 - 13:20

Lunchtime Symposia (LTS) (three concurrent sessions)

12:20 - 13:20

LTS 1 | Bone Health Assessment and Optimization for Patients Undergoing Adult Spinal Deformity Surgery

Moderators: *Venu M. Nemani, MD, PhD & John R. Dimar, II, MD*

- 12:20 - 12:23 **Introduction**
Venu M. Nemani, MD, PhD
- 12:23 - 12:28 **Case Presentation: My Patient is Scheduled for an Adult Spinal Deformity Reconstruction and has a T-Score of -2.6, Now What?**
Philip K. Louie, MD
- 12:28 - 12:38 **What Does a Comprehensive Bone Health Assessment Look Like and What are the Treatment Options? The Endocrinology Perspective**
Susan Ott, MD
- 12:38 - 12:53 **Panel Discussion 1: Pre-Operative Bone Health Evaluation and Optimization**
Benny T. Dahl, MD, PhD, DMSc; Marinus de Kleuver, MD, PhD; Jean-Christophe A. Leveque, MD; Susan Ott, MD
- 12:53 - 13:03 **The Impact of Poor Bone Quality on Outcomes Following ASD Surgery**
Mitsuru Yagi, MD, PhD
- 13:03 - 13:18 **Panel Discussion 2: Operating on a Patient with Poor Bone Health - Pearls and Pitfalls**
Dominique A. Rothenfluh, MD, PhD; Zeeshan Sardar, MD; Rajiv K. Sethi, MD; Mitsuru Yagi, MD, PhD

Annual Meeting Preliminary Program

Wednesday, September 6, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

13:18 - 13:20 **Conclusion**
John R. Dimar, II, MD

12:20 - 13:20

LTS 2 | Developing a Comprehensive Pain Management Program: The Before, During and After

Moderators: Michelle C. Welborn, MD & Suken A. Shah, MD

12:20 - 12:23 **Introduction**
Michelle C. Welborn, MD

12:23 - 12:28 **Starting Early, Building Resilience in our Brace Patients**
Catherine McClellan, PhD

12:28 - 12:33 **SurgeryPal Program and Optimizing Patients Preoperatively**
Jennifer Rabbitts, MD

12:33 - 12:38 **PROMIS Scores and their Ability to Predict Outcomes**
Daniel Bouton, MD

12:38 - 12:43 **Prognostication in the Adult Risk Factors for Poor Outcomes and How to Modify Them**
Jeffrey L. Gum, MD

12:43 - 12:49 **Discussion**

12:49 - 12:54 **Intraoperative Adjuncts to Pain Management**
Amy L. McIntosh, MD

12:54 - 12:59 **The Road to Recovery in Less Than Ideal Patients Intraoperative and Postoperative Optimization Strategies**
Serena S. Hu, MD

12:59 - 13:04 **ERAS Program, Building a Multimodal Pain Management**
Nicholas D. Fletcher, MD

13:04 - 13:09 **The Role of Preoperative and Postoperative Physical Therapy**
Michelle C. Welborn, MD

13:09 - 13:14 **Minimizing Long-term Use of Pain Medications in Pediatric and Adult Patients**
Michael P. Kelly, MD

13:14 - 13:20 **Discussion**

12:20 - 13:20

LTS 3 | Economic Outlook for Adult Spinal Deformity: The Past, Present and Future

Moderators: Rajiv K. Sethi, MD & Marinus de Kleuver, MD, PhD

12:20 - 12:25 **Introduction**
Rajiv K. Sethi, MD

12:25 - 12:29 **Mechanics of Basic Health Economics in View of Adult Spinal Deformity**
Philip K. Louie, MD

12:29 - 12:33 **Advocacy to Government and Stakeholders in Spine Surgery: Why Surgeons Should be Involved in Government and Reimbursement**
David W. Polly, MD

12:33 - 12:37 **Global Perspectives: What Can we Learn from European Health Economics**
Ferran Pellisé, MD, PhD

12:37 - 12:41 **Team Strategies: Multidisciplinary Strategies and how to Build the Economic Model**
Lawrence G. Lenke, MD

12:41 - 12:45 **Centers of Excellence for ASD Surgery and Preferred Reimbursement**
Jesse Shen, MD, PhD

12:45 - 12:49 **Predictive Analytics and AI in Spine: Is this just an Academic Topic or an Actual Gamechanger?**
Vijay Yanamadala, MD, MS, MBA

Program (topics, timing, and faculty) are preliminary and subject to change.

- 12:49 - 12:57 **Discussion**
- 12:57 - 13:17 **Panel Discussion: Adult Spinal Deformity Across Generations of Surgeons, What has Changed and what Challenges Remain. Will Cost Preclude Progress?**
Ahmet Alanay, MD; Evalina L. Burger, MD; Henry F.H Halm, MD; Han Jo Kim, MD; Eric O. Klineberg, MD; Kota Watanabe, MD, PhD
- 13:17 - 13:20 **Conclusion**
Rajiv K. Sethi, MD

13:20 - 13:40

Break

13:40 - 15:10

Abstract Session 1 | Adult Spinal Deformity

Moderators: *Eric O. Klineberg, MD & Kota Watanabe, MD, PhD*

- 13:40 - 13:45 **Introduction**
- 13:45 - 13:49 **Paper #1: Twenty-year Follow-up after Single Level Lumbar Fusion, a Retrospective Analysis**
José Spirig, MD; Shayan Golshani, MD; Mazda Farshad, MPH; Michael Betz, MD
- 13:49 - 13:53 **Paper #2: Change in Spinal Bone Mineral Density as Estimated by Hounsfield Units following Osteoporosis Treatment with Romosozumab, Teriparatide, Denosumab, and Alendronate: An Analysis of 318 Patients**
Anthony Mikula, MD; Nikita Lakomkin, MD; Abdelrahman Hamouda, BS; Megan C. Everson, MD; Zach Pennington, MD; Rahul Kumar, MD, PhD; Zachariah W. Pinter, MD; Michael Martini, PhD; Kurt A. Kennel, MD; Francis Baffour, MD; Ahmad Nassr, MD; Arjun Sebastian, MD; Kingsley Abode-Iyamah, MD; Mohamad Bydon, MD; Paul A. Anderson, MD; Jeremy L. Fogelson, MD; Benjamin D. Elder, MD, PhD
- 13:53 - 13:57 **Paper #3: ASD with High PT have Decreased Hamstring Lengths Both in Standing Position and During Walking**
Guillaume Rebeyrat, MS; Ayman Assi, PhD; Rami Rachkidi, MD, MS; Abir Massaad, PhD; Mohammad I. Karam, PhD; Ismat Ghanem, MD, MS; Helene Pillet, PhD; Wafa Skalli, PhD
- 13:57 - 14:06 **Discussion**
- 14:06 - 14:10 **Paper #4: Osteoporotic Patients on Teriparatide Have Lower Pseudoarthrosis Rate Compared to Patients with Osteopenia**
Sarthak Mohanty, BS; Fthimnir Hassan, MPH; Erik Lewerenz, BS; Zeeshan M. Sardar, MD; Ronald A. Lehman, MD; Lawrence G. Lenke, MD
- 14:10 - 14:14 **Paper #5: Measuring Acetabular Orientation in the Lewinnek Plane is Not Suitable for ASD Patients with High Pelvic Retroversion**
Elena Jaber, MS; Rami Rachkidi, MD, MS; Ali Rteil, MS; Elma Ayoub, MS; Maria Saadé, MS; Celine Chaaya, MS; Rami Rhayem, BS; Elio Mekhael, BS; Nabil Nassim, BS; Mohammad I. Karam, PhD; Abir Massaad, PhD; Ismat Ghanem, MD, MS; Virginie Lafage, PhD; Wafa Skalli, PhD; Ayman Assi, PhD
- 14:14 - 14:18 **Paper #6: Are NIH and Industry Payments Related to the Type of Attention Articles Receive?**
Daniel Farivar, BS; Kenneth D. Illingworth, MD; Amar Vadhera, BS; David L. Skaggs, MD, MMM
- 14:18 - 14:22 **Discussion**
- 14:22 - 14:31 **Paper #7: Comparison of Radiographic and Clinical Outcomes of Adult vs Adolescent Scheuermann Kyphosis Patients: A Matched Cohort Analysis after Surgery**
Caglar Yilgor, MD; Altug Yucekul, MD; Tais Zulemyan, MSc; Yasemin Yavuz, PhD; Baron S. Lonner, MD; Ibrahim Obeid, MD; Burt Yaszay, MD; Frank S. Kleinstueck, MD; Suken A. Shah, MD; Javier Pizones, MD, PhD; Harry L. Shufflebarger, MD; Francisco Javier S. Perez-Grueso, MD; Peter O. Newton, MD; Ferran Pellisé, MD, PhD; Ahmet Alanay, MD; Harms Study Group; European Spine Study Group
- 14:31 - 14:35 **Paper #8: Long Term Mechanical Failure In Well Aligned ASD Patients**
Sleiman Haddad, MD, PhD, FRCS; Susana Núñez Pereira, MD; Javier Pizones, MD, PhD; Manuel Ramirez Valencia, MD; Caglar Yilgor, MD; Ahmet Alanay, MD; Frank S. Kleinstueck, MD; Ibrahim Obeid, MD; Francisco Javier S. Perez-Grueso, MD; Ferran Pellisé, MD, PhD; European Spine Study Group

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- 14:35 - 14:39 **Paper #9: Validation of Lordosis Distribution Index for Predicting Mechanical Complications After Long Level Fusion Surgery: A Comparison of GAP Score and Roussouly Classification**
Myung-Hoon Shin, MD, PhD
- 14:39 - 14:48 **Discussion**
- 14:48 - 14:52 **Paper #10: Comparing the Upper Instrumented Vertebrae Tilt Angle Versus Screw Angle in the Development of Proximal Junction Kyphosis after Adult Spinal Deformity Surgery: Which Matters More?**
Keyan Peterson, MD, MS; Hani Chanbour, MD; Jeffrey W. Chen, BS; Michael Longo, MD; Soren Jonzson, MD; Steven G. Roth, MD; Amir M. Abtahi, MD; Byron F. Stephens, MD; Scott Zuckerman, MPH
- 14:52 - 14:56 **Paper #11: Self-Image Is Underestimated as a Primary Driver for Patient Treatment and Surgical Satisfaction In Adult Spinal Deformity (ASD)**
Douglas C. Burton, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Stephen J. Lewis, MD, FRCS(C); Breton G. Line, BS; Lawrence G. Lenke, MD; Eric O. Klineberg, MD; Christopher P. Ames, MD; Robert K. Eastlack, MD; Gregory M. Mundis, MD; Jeffrey L. Gum, MD; D.Kojo Hamilton, FAANS; Virginie Lafage, PhD; Renaud Lafage, MS; Alan H. Daniels, MD; Munish C. Gupta, MD; Michael P. Kelly, MD; Peter G. Passias, MD; Themistocles S. Protopsaltis, MD; Khaled M. Kebaish, MD; Han Jo Kim, MD; Frank J. Schwab, MD; Justin S. Smith, MD, PhD; International Spine Study Group
- 14:56 - 15:00 **Paper #12: Adult Spinal Deformity Patients Revised for Pseudarthrosis have Comparable 2Yr Outcomes to those not undergoing any Revision Surgery**
Sarthak Mohanty, BS; Andrew Platt, MD; Fthimnir Hassan, MPH; Erik Lewerenz, BS; Christopher Mikhail, MD; Stephen Stephan, MD; Joshua Baksheshian, MD; Zeeshan M. Sardar, MD; Ronald A. Lehman, MD; Lawrence G. Lenke, MD
- 15:00 - 15:10 **Discussion**

15:10 - 15:30

Refreshment Break

15:30 - 17:15

Abstract Session 2 | Adolescent Idiopathic Scoliosis

Moderators: Jennifer M. Bauer, MD, MS & Peter O. Newton, MD

- 15:30 - 15:34 **Paper #13: Natural History of Low-Grade Isthmic Spondylolisthesis Found Incidentally in Asymptomatic Children. A Longitudinal Cohort Study of 151 Patients with Minimum 2-Year Follow-Up.**
Antoine Dionne, BS; Abdulmajeed Alzakri, MD; Hubert Labelle, MD; Julie Joncas, RN; Stefan Parent, MD, PhD; Jean-Marc Mac-Thiong, MD, PhD
- 15:34 - 15:38 **Paper #14: Development of Pelvic Incidence, Sacral Slope and Pelvic Tilt and the Effect of Age, Sex, and BMI: An Automated 3D-CT Study of 882 Children and Adolescents**
Grant D. Hogue, MD; Eduardo Novais, MD; Mallika Singh, MS; Mohammadreza Movahhedi, BS; Ata Kiapour, PhD
- 15:38 - 15:42 **Paper #15: Functional Motion and Balance Improve after Posterior Spinal Fusion in AIS**
Tori Kinamon, BA; Anthony A. Catanzano, MD; Mary Jackson, PT; Elizabeth Sachs, Research Coordinator; Robert K. Lark, MD
- 15:42 - 15:51 **Discussion**
- 15:51 - 15:55 **Paper #16: Surface Topographic Chest Volume Measurements Strongly Correlate with Pulmonary Function Volume Measurements in Pediatric Spinal Deformity Patients**
Jessica H. Heyer, MD; Jenna L. Wisch, BS; Kiranpreet K. Nagra, BA; Ankush Thakur, MS; Howard Hillstrom, PhD; Colson P. Zucker, BA; Benjamin Groisser, MS; Matthew E. Cunningham, MD, PhD; M. Timothy Hresko, MD; Ram Haddas, PhD; Mary F. Di Maio, MD; Roger F. Widmann, MD
- 15:55 - 15:59 **Paper #17: The Impact of Mental Health on Post-Operative Outcomes for Adolescents Undergoing Posterior Spinal Fusion for Idiopathic Scoliosis at a Tertiary Care Children's Hospital in an Underserved Region**
Leila Mehraban Alvandi, PhD; Kathryn Segal, BS; Jorden Xavier, BS; Alexandria Debasitis, BS; Edina Gjonbalaj, BS; David Ge, MD; Jacob F. Schulz, MD; Jaime A. Gomez, MD; Eric Fornari, MD

Program (topics, timing, and faculty) are preliminary and subject to change.

- 15:59 - 16:03 **Paper #18: Have We Improved Anterior Vertebral Body Tethering Outcomes Over Time? An Examination of Survivorship Trends**
Joshua Tadlock, MD; Peter O. Newton, MD; Tracey P. Bastrom, MA; Stefan Parent, MD, PhD; Ahmet Alanay, MD; Dan Hoernschemeyer, MD; Firoz Miyajji, MD; Harms Non-Fusion C. Study Group
- 16:03 - 16:12 **Discussion**
- 16:12 - 16:16 **Paper #19: Outcomes of Anterior Vertebral Body Tethering in Lenke 1AR vs. 1AL Curve Types**
Joshua Pahys, MD; Steven W. Hwang, MD; Terrence G. Ishmael, MBBS; Alejandro Quinonez, BS; Jason Woloff, BS; Maureen McGarry, BBE; Kaitlin Kirk, BS; Emily Nice, BS; Amer F. Samdani, MD
- 16:16 - 16:20 **Paper #20: 3D Correction Analysis of the Minimize Implants Maximize Outcomes (MIMO) Randomized Clinical Trial / Screw Density Influence Transverse Plane Correction in AIS Instrumentation? A Biomechanical Study Complementary to the MIMO Clinical Trial**
Mathieu Chayer; Xiaoyu Wang, PhD; A. Noelle Larson, MD; Christian Bellefleur, MS, Eng; David W. Polly, MD; Christiane Caouette, PhD; Stefan Parent, MD, PhD; Carl-Eric Aubin, PhD
**Author list subject to adjustment during combination process.*
- 16:20 - 16:24 **Paper #21: Epidemiology of Surgical Management for Pediatric Spondylolysis and Spondylolisthesis**
Wesley M. Durand, MD; Miguel A. Cartagena-Reyes, BS; Paul D. Sponseller, MD, MBA; Amit Jain, MD
- 16:24 - 16:33 **Discussion**
- 16:33 - 16:37 **Paper #22: Thoracic Kyphosis Maintenance in Lenke 1 AIS: Vertebral Body Tethering Versus Posterior Spinal Fusion**
Baron S. Lonner, MD; Ashley Wilczek, BS; Peter O. Newton, MD; Dan Hoernschemeyer, MD; Amer F. Samdani, MD; Stefan Parent, MD, PhD; Firoz Miyajji, MD; Ahmet Alanay, MD; Burt Yaszay, MD; Suken A. Shah, MD; Harms Study Group
- 16:37 - 16:41 **Paper #23: Prediction of Curve Progression in Adolescent Idiopathic Scoliosis with Bone Microarchitecture Phenotyping by an Unsupervised Machine Learning Protocol**
Kenneth GP Yang, PhD, MBBS; Wayne YW Lee, PhD; Lik Hang Alec Hung, MBBS, MS, FRCS; Jack C. Cheng, MD, FRCS; Tsz-Ping Lam, MBBS, FRCS
- 16:41 - 16:45 **Paper #24: Predicting Outcomes of Thoraco-Lumbo-Sacral Orthosis Treatment in Adolescent Idiopathic Scoliosis**
Kristin J. Smith, CO; Brian M. Benish, CO; Elizabeth A. Nelson, MPH; Meghan E. Munger, MPH; Joseph H. Perra, MD; John E. Lonstein, MD; Tom F. Novacheck, MD; Carol J. Hentges, CO; Jennifer E. Fawcett, CO; Michael H. Schwartz, PhD
- 16:45 - 16:54 **Discussion**
- 16:54 - 16:58 **Paper #25: Chronic Nerve Root Injury in Pediatric Patients with Chronic Lumbar Stress Fractures**
Cole D. Tessoroff, MS3; Kyle Haddick; John McClellan, MD
- 16:58 - 17:02 **Paper #26: The Kids Are Not Alright: The Decline of Pre-Operative SRS Scores over Time in Patients with Adolescent Idiopathic Scoliosis**
Adam Jamnik, BA; David C. Thornberg, BS; Chan-hee Jo, PhD; Jaysson T. Brooks, MD; Amy L. McIntosh, MD; Brandon Ramo, MD
- 17:02 - 17:06 **Paper #27: The Oswestry Disability Index is Valid in Children**
Karina A. Zapata, PhD, PT, DPT; Chan-Hee Jo, PhD; Brandon A. Ramo, MD
- 17:06 - 17:15 **Discussion**

17:15 - 17:35

Break

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17:35 - 18:35

Case Discussions (three concurrent sessions)

17:35 - 18:35

Case Discussion 1 | Cervical & IONM

Moderators: Amer F. Samdani, MD & Han Jo Kim, MD

- 17:35 - 17:50 **Paper #28: Gout-Induced Cervical Deformity and Progressive Myelopathy Mimicking Infection Requiring Cervical Reconstruction**
Philip K. Louie, MD; Hannah Boudreaux, PA-C; Jesse Shen, MSc; Devon Lefever, MD; Venu M. Nemani, MD, PhD
- 17:50 - 18:05 **Paper #29: Aborted AIS Spinal Fusion Due To Persistent Loss of IONM: Which Patients Are At Greatest Risk?**
Amy L. McIntosh, MD; Lydia Klinkerman, BS; Megan E. Johnson, MD
- 18:05 - 18:20 **Paper #30: Severe Cervical Kyphosis of Neurofibromatosis Type 1 with Intradural Tumor in a Pediatric Patient with 2-year Follow-up**
Siyi Cai, MD; Ye Tian, MD; Xin Chen, MD
- 18:20 - 18:35 **Paper #31: Craniovertebral Angle (CVA) and Head Position Should be Considered in Autistic AIS Patients**
Vishal Sarwahi, MD; Sayyida Hasan, BS; Keshin Visahan, BS; Aravind Patil, MD; Terry D. Amaral, MD

17:35 - 18:35

Case Discussion 2 | Early Onset Scoliosis

Moderators: Lindsay M. Andras, MD & Michael G. Vitale, MD, MPH

- 17:35 - 17:50 **Paper #32: Paralysis and Repeated Rod Fractures During Traditional Dual Growing Rods Treatment in a Patient With Marfanoid-Progeroid-Lipodystrophy Syndrome: More than 9-year Follow-up**
Yang Yang, MD; Nan Wu, MD; Shengru Wang, MD, PhD; Terry Jianguo Zhang, MD
- 17:50 - 18:05 **Paper #33: Rib Fracture and Pneumothorax during Intraoperative Magnetic Rod Distraction**
Vishal Sarwahi, MD; Sayyida Hasan, BS; Keshin Visahan, BS; Aravind Patil, MD; Terry D. Amaral, MD
- 18:05 - 18:20 **Paper #34: Juvenile Scoliosis in A Competitive Gymnast: How to Maintain their Flexibility**
Vishal Sarwahi, MD; Sayyida Hasan, BS; Keshin Visahan, BS; Aravind Patil, MD; Terry D. Amaral, MD
- 18:20 - 18:35 **Paper #35: Hemodynamic Instability from Patient Positioning with Pectus Excavatum Leading to Procedural Discontinuance**
Vishal Sarwahi, MD; Sayyida Hasan, BS; Keshin Visahan, BS; Aravind Patil, MD; Terry D. Amaral, MD

17:35 - 18:35

Case Discussion 3 | Rare Cases

Moderators: Ron El-Hawary, MD & John S. Vorhies, MD

- 17:35 - 17:50 **Paper #36: Posterior Temporary Internal Distraction with Anterior Release and Subsequent Spinal Fusion for the Treatment of Severe Scoliosis**
Daisuke Yamabe, MD, PhD; Hideki Murakami, MD, PhD; Hirooki Endo, MD, PhD; Yusuke Chiba, MD, PhD; Hirotaka Yan, MD; Minoru Doita, MD, PhD
- 17:50 - 18:05 **Paper #37: Posterior-Based Spinal Tether in Combination With Guided-Growth Principles: A Novel Approach in Severe Early Onset Scoliosis**
Vishal Sarwahi, MD; Keshin Visahan, BS; Sayyida Hasan, BS; Aravind Patil, MD; Terry D. Amaral, MD
- 18:05 - 18:20 **Paper #38: Congenital Dislocation Spine: A Rare Case Report with Diagnostic Dilemma**
Shah Waliullah, PhD, MBBS, MS
- 18:20 - 18:35 **Paper #39: The Case for Posterior Spinal Fusion Surgery in Severe Thoracolumbar Neuromuscular Scoliosis with Chronic Hip Dislocation**
Paige Miller, BA; Lauren Lamont, MD

18:35 - 18:50

Break

Annual Meeting Preliminary Program

Wednesday, September 6, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

18:50 - 20:00

Opening Ceremonies

- 18:50 - 18:53 **Welcome to Seattle**
Rajiv K. Sethi, MD
- 18:53 - 18:56 **Presidential Message**
Serena S. Hu, MD
- 18:56 - 18:59 **Acknowledgement of 2023 Research Grant Recipients**
Michelle C. Welborn, MD
- 18:59 - 19:02 **Acknowledgement of 2023 Biedermann Innovation Award Recipient**
Markku Biedermann, MD
- 19:02 - 19:05 **Acknowledgement of 2023 SRS-Cotrel Foundation Basic Science Research Grant Recipient**
Nicolas Plais, MD
- 19:05 - 19:08 **Acknowledgement of 2023 Awards & Scholarship Winners**
Paul C. Celestre, MD
- 19:08 - 19:15 **Presentation of Blount Humanitarian Award**
Laurel C. Blakemore, MD
- 19:15 - 19:33 **Acknowledgement of Corporate Supporters**
Christopher I. Shaffrey, MD
- 19:33 - 19:38 **Introduction of Howard Steel Lecturer**
Serena S. Hu, MD
- 19:38 - 19:58 **Howard Steel Lecture**
Ann Compton
- 19:58 - 20:00 **Closing Remarks**
Serena S. Hu, MD

20:00 - 22:00

Welcome Reception

A hosted reception featuring hors d'oeuvres, cocktails, and reunions with colleagues and friends will immediately follow the Opening Ceremonies.

Program (topics, timing, and faculty) are preliminary and subject to change.

08:00 - 09:50

Abstract Session 3 | Quality/Safety/Value/Complications

Moderators: Shay Bess, MD & Suken A. Shah, MD

08:00 - 08:05 **Introduction**

08:05 - 08:09 **Paper #40: Does Weight Loss Reduce the Risk of Obesity-Related Complications in Spine Fusion Surgery?**

Camryn Myers, BS; Abel De Varona-Cocero, BS; Fares Ani, MD; Constance Maglaras, PhD; Themistocles Protopsaltis, MD

08:09 - 08:13 **Paper #41: Intra-Abdominal Content Movement In Prone Versus Lateral Decubitus Position Lateral Lumbar Interbody Fusion (LLIF.)**

Cristiano Menezes, MD, PhD; Luciene M. Andrade, MD, PhD; Gabriel C. Lacerda, MD; Marlus M. Salomão, MD; Mark T. Freeborn, MD; J.A. Thomas, MD

08:13 - 08:17 **Paper #42: Surgeons Beware! Defining the “No Surgery Recommended” (NSR) Patient Who Should Not Undergo ASD Surgery**

Jeffrey L. Gum, MD; Breton G. Line, BS; Shay Bess, MD; Lawrence G. Lenke, MD; Renaud Lafage, MS; Justin S. Smith, MD, PhD; Jeffrey P. Mullin, MD; Michael P. Kelly, MD; Bassel G. Diebo, MD; Thomas J. Buell, MD; Justin K. Scheer, MD; Virginie Lafage, PhD; Eric O. Klineberg, MD; Han Jo Kim, MD; Peter G. Passias, MD; Khaled M. Kebash, MD; Robert K. Eastlack, MD; Alan H. Daniels, MD; Alex Soroceanu, MPH; Gregory M. Mundis, MD; Richard Hostin, MD; Themistocles S. Protopsaltis, MD; D.Kojo Hamilton, FAANS; Munish C. Gupta, MD; Frank J. Schwab, MD; Christopher I. Shaffrey, MD; Christopher P. Ames, MD; Douglas C. Burton, MD; International Spine Study Group

08:17 - 08:26 **Discussion**

08:26 - 08:30 **Paper #43: Achievement and Maintenance of Optimal Alignment Following Adult Spinal Deformity Corrective Surgery: A 5 Year Outcome Analysis**

Jamshaid Mir, MD; Pooja Dave, BS; Peter Tretiakov, BS; Stephane Owusu-Sarpong, MD; Renaud Lafage, MS; Virginie Lafage, PhD; Peter G. Passias, MD

08:30 - 08:34 **Paper #44: Neuro-monitoring can be Safely Stopped 20 minutes after Pediatric Spine Deformity Correction. The 20-minute Rule.**

John Smith, MD; Nancy Campbell, DO; Jonathon Umina, BS; Joshua Klatt, MD; John A. A. Heflin, MD; Jayden Brennan, BS

08:34 - 08:38 **Paper #45: Metal Hypersensitivity Prevalence in Pediatric Spine Surgery**

Alvin Jones, MD; Nichole S. Leitsinger, BS; Lindsay R. Schultz, CCRP; Viral V. Jain, MD

08:38 - 08:47 **Discussion**

08:47 - 08:51 **Paper #46: Intrawound Vancomycin Powder Reduces Delayed Deep Surgical Site Infections in Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis Patients**

Kensuke Shinohara, MD; Peter O. Newton, MD; Michael P. Kelly, MD; Vidyadhar V. Upasani, MD; Carrie E. Bartley, MA; Tracey P. Bastrom, MA; Harms Study Group

08:51 - 08:55 **Paper #47: Monthly Multidisciplinary Adult Spinal Deformity Conference is Cost-Effective: Cost-Analysis Utilizing Lean Methodology and Time-Driven Activity-Based Costing**

Devon Lefever, MD; Philip K. Louie, MD; Caroline E. Drolet, PhD; Michelle Gilbert, PA-C; Andrew Friedman, MD; Joseph Strunk, MD; Brooks Ohlson, MD; Richard Kronfol, MD; Venu M. Nemani, MD, PhD; Jean-Christophe A. Leveque, MD; Rajiv K. Sethi, MD

08:55 - 08:59 **Paper #48: “Too Much of a Good Thing”: High Cell Saver Autotransfusion is Associated with Perioperative Medical Complications**

Sarthak Mohanty, BS; Lawrence G. Lenke, MD; Josephine R. Coury, MD; Fthimnir Hassan, MPH; Justin Reyes, MS; Ronald A. Lehman, MD; Zeeshan M. Sardar, MD

08:59 - 09:08 **Discussion**

09:08 - 09:12 **Paper #49: The Evolution of ERAS: Assessing the Clinical Benefits of Developments within Enhanced Recovery After Surgery Protocols in Adult Cervical Deformity Surgery**

Peter G. Passias, MD

09:12 - 09:16 **Paper #50: Clinical and Patient-Reported Outcomes of Adult Spinal Deformity Surgery with Ten-Year Follow-Up**

Peter Tretiakov, BS; Pooja Dave, BS; Jamshaid Mir, MD; Stephane Owusu-Sarpong, MD; Renaud Lafage, MS; Virginie Lafage, PhD; Peter G. Passias, MD

Annual Meeting Preliminary Program

Thursday, September 7, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

- 09:16 - 09:20 **Paper #51: A Ten Year Review of Pediatric Posterior Deformity Cases Utilizing Tranexamic Acid (TXA) Infusions with New Onset Central Diabetes Insipidus (CDI)**
Kyle Hardacker, MD; Pierce Hardacker, BS; Doris M. Hardacker, MD
- 09:20 - 09:29 **Discussion**
- 09:29 - 09:33 **Paper #52: Cost-Value of the Spine At Risk Program**
Madeleine E. Jackson, MD; Amanda K. Galambas, BS; Walter F. Krengel III, MD; Samuel R. Browd, MD, PhD; Klane K. White, MD; Burt Yaszay, MD; Jennifer M. Bauer, MD, MS
- 09:33 - 09:37 **Paper #53: Apical Region Correction and Global Balance Surgical Strategy Can Improve Pulmonary Function in Patients with Severe Thoracic Scoliosis at 2-year Follow-up**
Yang Jiao, MD; Junduo Zhao, MBBS; Zhen Wang, MD; Haoyu Cai, MD; Jianxiang Shen, MD; Xin Chen, MD
- 09:37 - 09:41 **Paper #54: Thoracolumbar Fusions for Adult Lumbar Deformity Show Superior QALY Gain and Lower Costs Compared to Upper Thoracic Fusions**
Richard A. Hostin, Jr., MD; Samrat Yeramaneni, PhD; Jeffrey L. Gum, MD; Breton G. Line, BS; Shay Bess, MD; Lawrence G. Lenke, MD; Renaud Lafage, MS; Justin S. Smith, MD, PhD; Jeffrey P. Mullin, MD; Michael P. Kelly, MD; Bassel G. Diebo, MD; Thomas J. Buell, MD; Justin K. Scheer, MD; Virginie Lafage, PhD; Eric O. Klineberg, MD; Han Jo Kim, MD; Peter G. Passias, MD; Khaled M. Kebaish, MD; Robert K. Eastlack, MD; Alan H. Daniels, MD; Alex Soroceanu, MPH; Gregory M. Mundis, MD; Themistocles S. Protopsaltis, MD; D.Kojo Hamilton, FAANS; Munish C. Gupta, MD; Frank J. Schwab, MD; Christopher I. Shaffrey, MD; Christopher P. Ames, MD; Douglas C. Burton, MD; International Spine Study Group
- 09:41 - 09:50 **Discussion**

09:50 - 10:10

Refreshment Break

10:10 - 12:15

Abstract Session 4 | Adolescent Idiopathic Scoliosis and Harrington Lecture

Moderators: Munish C. Gupta, MD & A. Noelle Larson, MD

- 10:10 - 10:14 **Paper #55: Neck and Shoulder Pain 10 Years After Posterior Spinal Fusion for Thoracic Adolescent Idiopathic Scoliosis**
Masayuki Ohashi, MD, PhD; Kei Watanabe, MD, PhD; Kazuhiro Hasegawa, MD, PhD; Toru Hirano, MD, PhD
- 10:14 - 10:18 **Paper #56: The Modified Proximal Humerus Ossification System Predicts Surgical Curve Progression in Unbraced Patients with Adolescent Idiopathic Scoliosis**
Tristen N. Taylor, BS; Callie Bridges, BS; Tiffany Lee, BS; Brian G. Smith, MD
- 10:18 - 10:22 **Paper #57: Are Side Bending Films Obsolete in Favour of Pre-operative Traction Films in the Evaluation of Adolescent Idiopathic Scoliosis (AIS)?**
Praveen Goparaju, MBBS, MS
- 10:22 - 10:31 **Discussion**
- 10:31 - 10:35 **Paper #58: The Impact of Closed Suction Wound Drain on Immediate And Persistent Pain in Adolescents Undergoing Posterior Spinal Fusion For Idiopathic Scoliosis**
Linda Helenius, MD, PhD; Paul Gerdhem, MD, PhD; Matti Ahonen, MD, PhD; Johanna Syvänen, MD, PhD; Ilkka J. Helenius, MD, PhD
- 10:35 - 10:39 **Paper #59: Subclassification of Sanders Maturation Stage 3: Differences in Spine and Total Height Velocity Between 3A and 3B in Patients with Idiopathic Scoliosis**
Yusuke Hori, MD, PhD; Burak Kaymaz, MD; Luiz Silva, MD; Kenneth J. Rogers, PhD; Petya Yorgova, MS; Irene Li, MS; Peter G. Gabos, MD; Suken A. Shah, MD
- 10:39 - 10:43 **Paper #60: Should We Adopt Gradual or Immediate Brace Weaning for AIS? - A Randomized Controlled Trial**
Jason Pui Yin Cheung, MD, MBBS, MS, FRCS; Prudence Wing Hang Cheung, BDS (Hons)
- 10:43 - 10:52 **Discussion**

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- 10:52 - 10:56 **Paper #61: LncAIS: A Novel and Significant Long Non-coding RNA Identified by Microarray Analysis and Implicated in the Pathogenesis of AIS and Associated Osteopenia**
Qianyu Zhuang, MD; Jianguo Zhang, MD
- 10:56 - 11:00 **Paper #62: Asymmetry Index Derived from Mobile Device 3D Scanning Accurately Detects Idiopathic Scoliosis: A Pilot Study**
Jack B. Michaud, BS; Christopher A. Jin, BS; Yousi A. Oquendo, MSE; Xochitl M. Bryson, BA; Michael Gardner, MD; Kali R. Tileston, MD; John S. Vorhies, MD
- 11:00 - 11:04 **Paper #63: Anterior Vertebral Body Tethering: A Single Center Cohort with 5+ Years of Follow-Up**
Dan Hoernschemeyer, MD; Nicole Tweedy, PNP; Melanie Boeyer, PhD
- 11:04 - 11:13 **Discussion**
- 11:13 - 11:17 **Paper #64: Should the C7-T1 Junction Be Feared? The Effect of a T1 UIV on PJK Risk in AIS Patients at Long-Term Follow-Up**
Jaysson Brooks, MD; Jennifer M. Bauer, MD, MS; Amit Jain, MD; Firoz Miyani, MD; Stefan Parent, MD, PhD; Peter O. Newton, MD; Vidyadhar V. Upasani, MD; Patrick J. Cahill, MD; Daniel J. Sucato, MD, MS; Paul D. Sponseller, MD, MBA; Amer F. Samdani, MD; Harms Study Group; Jayden Brennan, BS
- 11:17 - 11:21 **Paper #65: What is the Incidence and Course of Lumbar Vertebral Body Tethering Breakage?**
Steven W. Hwang, MD; Amer F. Samdani, MD; Terrence G. Ishmael, MBBS; Maureen McGarry, BBE; Alejandro Quinonez, BS; Jason Woloff, BS; Kaitlin Kirk, BS; Emily Nice, BS; Joshua M. Pahys, MD
- 11:21 - 11:25 **Paper #66: Core Muscle Strengths, Lumbar Flexibility and Quality of Life in AIS Patients Treated with either Long Fusion or Hybrid Technique Compared to Healthy Individuals**
Celaleddin Bildik, MD; Selmin E. Arsoy, PT; Selen Saygili, Exercise Specialist; Hamisi M. Mraja, MD; Cem Sever, MD; Ali T. Evren, MD; Meric Enercan, MD; Selhan Karadereler, MD; Tunay Sanli, MA; Azmi Hamzaoglu, MD
- 11:25 - 11:34 **Discussion**
- 11:34 - 11:39 **Harrington Lecture Introduction**
Serena S. Hu, MD
- 11:39 - 11:59 **Harrington Lecture**
Oheneba Boachie-Adjei, MD
- 11:59 - 12:15 **Presentation of the Lifetime Achievement Award**
Marinus de Kleuver, MD, PhD

12:15 - 12:50

Lunch Pickup & Break

12:50 - 14:20

Industry Workshops

14:20 - 14:40

Refreshment Break

14:40 - 17:20

Half-Day Courses (HDC) (three concurrent sessions)

14:40 - 17:20

HDC 1 | Neuromuscular Scoliosis From Head to Toe and Everything in Between

Moderators: *Selina C. Poon, MD, Michelle C. Welborn, MD & Steven W. Hwang, MD*

Session 1: Pre-op Non-Surgical Consideration

14:40 - 14:42 **Introduction**

Selina C. Poon, MD

14:42 - 14:47 **Pulmonary**

Gregory J. Redding, MD

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Program (topics, timing, and faculty) are preliminary and subject to change.

- 14:47 - 14:52 **Cardiology**
Katheryn Holmes, MD
**This speaker was sponsored, in part, by the Sponseller Interdisciplinary Fund*
- 14:52 - 14:57 **Endocrinology**
Lindsey E. Nicol, MD
**This speaker was sponsored, in part, by the Sponseller Interdisciplinary Fund*
- 14:57 - 15:02 **Neurosurgery**
Rajiv Iyer, MD
- 15:02 - 15:07 **Spacity and Scoliosis**
David Ephraim Bauer, MD
- 15:07 - 15:12 **Anesthesiology**
Lydia Andras, MD
**This speaker was sponsored, in part, by the Sponseller Interdisciplinary Fund*
- 15:12 - 15:20 **Discussion**

Session 2: Surgical Considerations

- 15:20 - 15:25 **Go Long and Include the Pelvis**
Ilkka J. Helenius, MD, PhD
- 15:25 - 15:30 **Stop Short**
Lindsay M. Andras, MD
- 15:30 - 15:35 **Forget Fusion, VBT is The Way**
Amer F. Samdani, MD
- 15:35 - 15:40 **Anterior/Posterior/VCR**
Lawrence G. Lenke, MD
- 15:40 - 15:45 **Less is Better- Balanced Residual**
Muharrem Yazici, MD
- 15:45 - 15:50 **Classic Detethering is Best and Stage It**
Mari L. Groves, MD
- 15:50 - 15:55 **Concurrent Vertebral Column Shortening is the Way**
Andrew H. Jea, MD
- 15:55 - 16:00 **Discussion**

Session 3: Complication Avoidance and Post-Op Considerations

- 16:00 - 16:06 **Complication Avoidance**
Michael G. Vitale, MD, MPH
- 16:06 - 16:12 **Ethics: Should We Be Doing This?**
A. Noelle Larson, MD
- 16:12 - 16:18 **Outreach: What Should we be Doing in Limited Resource Areas?**
Kenneth M. Cheung, MD, MBBS, FRCS
- 16:18 - 16:24 **Functional Considerations and Implications After PSF**
Glendaliz Bosques, MD
**This speaker was sponsored, in part, by the Sponseller Interdisciplinary Fund*
- 16:24 - 16:30 **General Pediatric Considerations and Changes After PSF**
Alexander Van Speybroeck, MD
**This speaker was sponsored, in part, by the Sponseller Interdisciplinary Fund*
- 16:30 - 16:37 **Discussion**
- 16:37 - 16:40 **Conclusion**
Michelle C. Welborn, MD

Program (topics, timing, and faculty) are preliminary and subject to change.

- 16:40 - 16:44 **Paper #67: Intrathecal Baclofen Pumps Do Not Increase the Risk of Complications in Cerebral Palsy Patients Undergoing Spinal Fusion**
Kenneth H. Levy, BS; Burt Yaszay, MD; Suken A. Shah, MD; Patrick J. Cahill, MD; Amer F. Samdani, MD; Paul Sponseller, MD, MBA
- 16:44 - 16:48 **Paper #68: Does the Availability of Baseline Intraoperative Neuromonitoring Data Affect Outcomes in Patients with Cerebral Palsy Undergoing PSF?**
Daniel Cherian, MD; Terrence Ishmael, MBBS; Alan Stein, MD; Joshua M. Pahys, MD; Steven W. Hwang, MD; Paul D. Sponseller, MD, MBA; Peter O. Newton, MD; Suken A. Shah, MD; Amer F. Samdani, MD; Harms Study Group
- 16:48 - 16:52 **Paper #69: Effects of Conversion from Gastrostomy to Gastrojejunostomy Tube Before Spinal Fusion for Children with Neuromuscular Scoliosis**
Candice Legister, BS; chrystina james, MD; Walter H. Truong, FAOA; Tenner Guillaume, MD; Danielle Harding, PA-C; Casey Palmer, BS; Sara Morgan, PhD; Eduardo C. Beauchamp, MD; Joseph H. Perra, MD; Daniel Miller, MD
- 16:52 - 17:02 **Discussion**
- 17:02 - 17:06 **Paper #70: Does Tone Affect Outcomes in Cerebral Palsy Patients Undergoing Posterior Spinal Fusion?**
Daniel Cherian, MD; Amer F. Samdani, MD; Joshua M. Pahys, MD; Terrence G. Ishmael, MBBS; Paul D. Sponseller, MD, MBA; Peter O. Newton, MD; Harms Study Group ; Steven W. Hwang, MD
- 17:06 - 17:10 **Paper #71: Pelvic Asymmetry in Children with Neuromuscular Scoliosis. 3D Tomographic Analysis**
Juan Arispe, MD; Mariano A. Noel, MD; Carlos A. Tello, MD, PhD; Lucas Piantoni, MD; Rodrigo G. Remondino, MD; Julian Calcagni, MD; Eduardo Galaretto, MD
- 17:10- 17:20 **Discussion**

14:40 - 17:20

HDC 2 | I Understand the Numbers, but How Do I Actually Perform the Surgery to Obtain Optimal Results: Step by Step Correction of Spinal Deformity

Moderators: Ronald A. Lehman, MD & D. Kojo Hamilton, MD, FAANS

- 14:40 - 14:43 **Introduction**
Ronald A. Lehman, MD
- 14:43 - 14:55 **Correcting the Adult Deformity Patient with Severe Coronal Malalignment**
Ronald A. Lehman, MD
- 14:55 - 15:07 **Severe Sagittal Malalignment: When to do Three Column Osteotomy and How to Perform it to Accomplish your Goals**
Serena S. Hu, MD
- 15:07 - 15:19 **How to Address Severe Kyphosising Scoliosis While Avoiding Severe Complications**
Lawrence G. Lenke, MD
- 15:19 - 15:27 **Discussion**
- 15:27 - 15:40 **Panel Discussion: Bringing it All Together: Revision CT and LS Malalignment**
Serena S. Hu, MD; Ronald A. Lehman, MD; Lawrence G. Lenke, MD; Joseph A. Osorio, MD, PhD
- 15:40 - 15:52 **Using Artificial Intelligence to Map out the Case, and Employing Real Time Dynamic Feedback to Perform the Surgery**
Joseph A. Osorio, MD, PhD
- 15:52 - 16:04 **Correction of a CervicoThoracic Deformity: When is it at the Junction and When is it a Combined CT and LS Issue?**
Christopher P. Ames, MD
- 16:04 - 16:16 **Use of Anterior, Lateral and Oblique Approaches to Correct Spinal Deformity: It Does work and this is how I do it**
D. Kojo Hamilton, MD, FAANS
- 16:16 - 16:24 **Discussion**
- 16:24 - 16:37 **Case Panel Discussion: Bringing it All Together: Revision CT and LS Malalignment**
Serena S. Hu, MD; Ronald A. Lehman, MD; Lawrence G. Lenke, MD; Joseph A. Osorio, MD, PhD
- 16:37 - 16:40 **Conclusion**
D. Kojo Hamilton, MD, FAANS

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- 16:40- 16:45 **Transition**
- 16:45 - 16:49 **Paper #72: Risk Factors for Reoperation for Mechanical Complications after Adult Spinal Deformity Surgery, Minimum 2 Year Follow Up**
Karnmanee Srisanguan, BS; Themistocles S. Protopsaltis, MD; Thomas Errico, MD; Tina Raman, MD
- 16:49 - 16:53 **Paper #73: Radiographic Outcomes Following Surgical Correction for Lumbar Degenerative Kyphosis: The Impact of Supine Pelvic Tilt**
Jae-Koo Lee, MD; Seung-Jae Hyun, MD, PhD; Seung Heon Yang, MD; Ki-Jeong Kim, MD, PhD
- 16:53 - 16:57 **Paper #74: Incidence and Risk Factors for Rod Fractures Occurring Greater than Two Years after Adult Spinal Deformity Surgery**
Karnmanee Srisanguan, BS; Thomas Errico, MD; Tina Raman, MD
- 16:57 - 17:04 **Discussion**
- 17:04 - 17:08 **Paper #75: Examining Malalignment: Persistent Compensatory Mechanisms Versus Normal Alignment in High Pelvic Incidence Patients**
Julio Jauregui, MD; Thamrong Lertudomphonwanit, MD; Alekos A. Theologis, MD; Munish C. Gupta, MD; Keith H. Bridwell, MD; Lawrence G. Lenke, MD; Michael P. Kelly, MD
- 17:08 - 17:12 **Paper #76: Upper Instrumented Vertebral Fracture in Adult Spinal Deformity Surgery can be Reduced by Increasing Occupancy Rate of Pedicle Screw in Vertebral Body over 80%**
Shin Oe, MD; Yu Yamato, MD, PhD; Tomohiko Hasegawa, MD, PhD; Go Yoshida, MD, PhD; Tomohiro Banno, MD, PhD; Hideyuki Arima, MD, PhD; Koichiro Ide, MD; Tomohiro Yamada, MD; Yukihiko Matsuyama, MD, PhD
- 17:12 - 17:20 **Discussion**

14:40 - 17:20

HDC 3 | Introduction to Leadership

*Attendance at this Half Day Course is limited to 100 participants, please select this option during the registration process if you would like to attend.

Moderators: Serena S. Hu, MD & Todd J. Albert, MD

- 14:40 - 14:45 **Welcome and Introduction**
Serena S. Hu, MD

Introduction to Leadership, Healthcare Leadership

- 14:45 - 15:05 **Leadership in The Modern World- Relationship to History and Stoicism**
Todd J. Albert, MD

Part 1: Leadership in the SRS Organization

- 15:05 - 15:15 **Structure of The SRS- Table of Organization and Program Goals**
Serena S. Hu, MD

- 15:15 - 15:25 **My Journey to the Presidential Line**
Marinus de Kleuver, MD, PhD

- 15:25 - 15:35 **My Journey to the Presidential Line**
Peter O. Newton, MD

- 15:35 - 15:45 **Discussion**

Part 2: Communication with Stakeholders

- 15:45 - 16:00 **Basic Communication Tools (Pathos, Logos, Ethos, etc.)**
David L. Skaggs, MD, MMM

- 16:00 - 16:05 **Discussion**

Part 3: Strategy

- 16:05 - 16:20 **Is a Mission and Vision Statement Important?- How to Create**
Paul T. Rubery Jr., MD

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- 16:20 - 16:35 **Importance of 1, 3, 5, and 10 Year Plans - How to Create**
Daniel J. Sucato, MD, MS
- 16:35 - 16:50 **Kaizen- Should You Embrace It and What Can It Do For Your Organization**
Rajiv K. Sethi, MD
- 16:50 - 16:55 **Discussion**
- 16:55 - 17:20 **Group Exercise/ Activity on Leadership**
- 17:20 - 17:22 **Closing Remark, Reminder to Apply for L.E.A.D SRS, and Adjourn**
Serena S. Hu, MD

17:20 - 17:30

Break

17:30 - 17:45

Membership Information Session

17:45 - 17:50

Break

17:50 - 18:50

Early Career Surgeon Session

The Early Career Surgeon Session is supported, in part, by Medtronic, NuVasive, and Stryker.

Building a Spine Deformity Practice: Tips and Tricks to Avoid Pitfalls

Moderators: Nitin Agarwal, MD & D. Kojo Hamilton, MD, FAANS

- 17:50 - 17:52 **Introduction**
Nitin Agarwal, MD & D. Kojo Hamilton, MD, FAANS

Part 1: Transitioning to Practice

- 17:52 - 17:56 **Navigating the Job Market**
Lindsay M. Andras, MD

- 17:56 - 18:00 **Contract Negotiation**
Shay Bess, MD

- 18:00 - 18:06 **Discussion**

Part 2: Practice Expansion

- 18:06 - 18:10 **Augmenting Referral Networks**
Teresa Bas, MD, PhD

- 18:10 - 18:14 **Achieving Balance in a Fast-Paced Practice**
Eric O. Klineberg, MD

- 18:14 - 18:20 **Discussion**

Part 3: Practice Management

- 18:20 - 18:24 **Learning a New Language: Coding for Deformity**
Jaysson T. Brooks, MD

- 18:24 - 18:28 **Medicolegal Mitigation**
Serena S. Hu, MD

- 18:28 - 18:34 **Discussion**

Annual Meeting Preliminary Program

Thursday, September 7, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

Part 4: Team Building and Research

18:34 - 18:38

Building a Team

Abigail K. Allen, MD

18:38 - 18:42

Integrating Research into Your Practice

Thomas J. Buell, MD

**This speaker was sponsored, in part, by the Sponseller Interdisciplinary Fund*

18:42 - 18:48

Discussion

18:48 - 18:50

Conclusion

Kariman Abelin Genevois, MD

18:50

Early Career Surgeon Social

The Early Career Surgeon Social is hosted by Medtronic.

Program (topics, timing, and faculty) are preliminary and subject to change.

08:00 - 09:50

Abstract Session 5 | Hibbs Award-Nominated Papers

Moderators: Amy L. McIntosh, MD & Rajiv K. Sethi, MD

08:00 - 08:05 **Welcome**

08:05 - 08:11 **Paper #77: Comparison of Disc and Facet Joint Degeneration and Quality of Life in Stopping Fusion at L3 versus L4 in AIS: An MRI Study with Mean 17 (15-21) years Follow-up†**

Hamisi M. Mraja, MD; Ayhan Mutlu, MD; Onur Levent Ulusoy, MD; Celaleddin Bildik, MD; Baris Peker, MD; Inas M. Daadour, MD; Tunay Sanli, MA; Selhan Karadereler, MD; Meric Enercan, MD; Azmi Hamzaoglu, MD

08:11 - 08:17 **Paper #78: The Reunion with my Patients. Their Journey and Experience 30 Years after Their Intervention for Adolescent Idiopathic Scoliosis (AIS) via CD Instrumentation†**

Francisco Javier Perez-Grueso, MD; Lucia Moreno-Manzanaro, BS; Javier Pizones, MD, PhD

08:17 - 08:23 **Paper #79: Radiographic Motion Before and After Anterior Vertebral Body Tethering Compared to Posterior Spinal Fusion for Thoracic Scoliosis†**

Michelle Claire Marks, PT; Maty Petcharaporn, BS; Tracey P. Bastrom, MA; Firoz Miyajji, MD; Patrick J. Cahill, MD; John (Jack) M. Flynn, MD; Baron S. Lonner, MD; Harms Study Group; Peter O. Newton, MD

08:23 - 08:37 **Discussion**

08:37 - 08:43 **Paper #80: Natural History of Adult Spinal Deformity: How do patients with Suboptimal Surgical Outcomes Fare Relative to Non-Operative Counterparts?†**

Peter G. Passias, MD; Rachel Joujon-Roche, BS; Pooja Dave, BS; Jamshaid Mir, MD; Peter Tretiakov, BS

08:43 - 08:49 **Paper #81: Importance of Self-Image in Adult Spinal Deformity: Results from the Prospective Evaluation of Elderly Deformity Surgery (PEEDS)†**

Christopher Nielsen, MD; Lauren Lewis; Kristen Arnold; Thorsten Jentzsch, MSc; Colby Oitment, MD, FRCS(C)

08:49 - 08:55 **Paper #82: A Prospective, Observational, Multicenter Study Assessing Functional Improvements After Multilevel Fusion for Adult Spinal Deformity (ASD): 5-Year Follow-Up Results†**

Aditya Raj, MS; Stephen J. Lewis, MD, FRCS(C); Christopher J. Nielsen, MD; Lawrence G. Lenke, MD; Christopher I. Shaffrey, MD; Kenneth M. Cheung, MD, MBBS, FRCS; David W. Polly, MD; Yong Qiu, PhD; Yukihiro Matsuyama, MD, PhD; Ferran Pellisé, MD, PhD; Jonathan N. Sembrano, MD; Benny T. Dahl, DMSc; Michael P. Kelly, MD; Marinus de Kleuver, MD, PhD; Ahmet Alanay, MD; Maarten Spruit, MD; Justin S. Smith, MD, PhD; Sigurd H. Berven, MD

08:55 - 09:09 **Discussion**

09:09 - 09:15 **Paper #83: Hierarchical Evaluation of Mechanically Induced Growth Modulation of the Spine in a Growing Pig Model***

Madeline Boyes, DVM; Axel C. Moore, PhD; Julie Engiles, VMD, DACVP; Benjamin Sinder, PhD; Rachel Hilliard; Jason B. Anari, MD; Sriram Balasubramanian, PhD; Edward Vresilovic, MD, PhD; Thomas P. Schaer, VMD; Dawn M. Elliott, PhD; Brian D. Snyder, MD, PhD; Patrick J. Cahill, MD

09:15 - 09:21 **Paper #84: Core Planar Cell Polarity Genes VANGL1 and VANGL2 in Predisposition to Congenital Scoliosis***

Yongyu Ye, MD; Xin Feng, PhD; Jason Pui Yin Cheung, MD, MBBS, MS, FRCS; Terry Jianguo Zhang, MD; Bo Gao, PhD; Nan Wu, MD

09:21 - 09:27 **Paper #85: Impaired Glycine Neurotransmission Causes Adolescent Idiopathic Scoliosis***

Jason Pui Yin Cheung, MD, MBBS, MS, FRCS; Xiaolu Wang, PhD; Ming Yue, PhD; Prudence Wing Hang Cheung, BSc (Hons); Yanhui Fan, PhD; Meicheng Wu, PhD; Xiaojun Wang, PhD; Sen Zhao, BS; Anas M. Khanshour, PhD; Zheyi Chen, MPhil; Danny Chan, PhD; Qiuju Yuan, PhD; Guixing Qiu, PhD; Zhihong Wu, MD; Jianguo Zhang, MD; Shiro Ikegawa, MD, PhD; Nan Wu, MD; Carol A. Wise, PhD; Yong Hu, PhD; Keith Dip Kei Luk, MCh(Orth); You-Qiang Song, PhD; Bo Gao, PhD

09:27 - 09:33 **Paper #86: Uncovering the Role of a Genetic Variant in Adolescent Idiopathic Scoliosis: Enhanced UNCX Expression Leads to Axial Deformations in Zebrafish***

Yoshiro Yonezawa, MD; Guo Long, MD, PhD; Nao Otomo, MD; Soichiro Yoshino, MD; Kazuki Takeda, MD, PhD; Yoshinao Koike, MD; Miitsuru Yagi, MD, PhD; Chikashi Terao, MD, PhD; Masaya Nakamura, MD, PhD; Morio Matsumoto, MD, PhD; Shiro Ikegawa, MD, PhD; Kota Watanabe, MD, PhD

09:33 - 09:49 **Discussion**

09:49 - 09:50 **Audience Vote**

Key: † = Hibbs Award Nominee – Best Clinical Paper * = Hibbs Award Nominee – Best Basic Science/Translational Paper

Program (topics, timing, and faculty) are preliminary and subject to change.

09:50 - 10:10

Refreshment Break

10:10 - 11:45

Abstract Session 6 | Cervical Deformity and Presidential Address

Moderators: Han Jo Kim, MD & Christopher I. Shaffrey, MD

- 10:10 - 10:14 **Paper #87: Development of a Hierarchical Approach to Surgical Planning in ACD Surgery**
Peter G. Passias, MD; Tyler K. Williamson, MS, BS; Pooja Dave, BS; Jamshaid Mir, MD; Peter Tretiakov, BS; Stephane Owusu-Sarpong, MD; Jordan Lebovic, BA
- 10:14 - 10:18 **Paper #88: Are we Getting Better at Treating Adult Cervical Deformity? Complication Rate Trends Analysis in Adult Cervical Deformity Over 10 Years**
Jamshaid Mir, MD; Pooja Dave, BS; Stephane Owusu-Sarpong, MD; Tobi Onafowokan, MBBS; Claudia Bennett-Caso, BA; Peter Tretiakov, BS; Peter G. Passias, MD
- 10:18 - 10:22 **Paper #89: Assessing the Synergistic Impacts of Frailty, Sarcopenia, and Osteoporosis on Morbidity and Mortality in the Adult Cervical Deformity Population**
Peter Tretiakov, BS; Pooja Dave, BS; Jamshaid Mir, MD; Stephane Owusu-Sarpong, MD; Tobi Onafowokan, MBBS; M. Burhan Janjua, MD; Peter G. Passias, MD
- 10:22 - 10:31 **Discussion**
- 10:31 - 10:35 **Paper #90: Analysis of Cost Utility of Distal Junctional Kyphosis Occurrence after Adult Cervical Deformity Surgery: The Benefit of Prophylaxis and Preoperative Optimization**
Pooja Dave, BS; Jamshaid Mir, MD; Peter Tretiakov, BS; Tobi Onafowokan, MBBS; Peter G. Passias, MD
- 10:35 - 10:39 **Paper #91: Lower Hounsfield Units at the Lowest Instrumented Vertebra is an Independent Risk Factor for Distal Junctional Kyphosis After Adult Cervical Deformity Surgery**
Peter G. Passias, MD; Tyler K. Williamson, MS, BS; Pooja Dave, BS; Jamshaid Mir, MD; Peter Tretiakov, BS; Stephane Owusu-Sarpong, MD; Jordan Lebovic, BA
- 10:39 - 10:43 **Paper #92: Despite a Multifactorial Etiology, Rates of Distal Junctional Kyphosis after Adult Cervical Deformity Corrective Surgery Can be Dramatically Diminished by Optimizing Age Specific Radiographic Improvement**
Peter G. Passias, MD; Oscar Krol, BS; Jamshaid Mir, MD; Pooja Dave, BS; Peter Tretiakov, BS
- 10:43 - 10:52 **Discussion**
- 10:52 - 10:56 **Paper #93: Preventing Distal Junctional Kyphosis: Choosing a Stable End for the Lowest-Instrumented Vertebra is Protective Following Adult Cervical Deformity Surgery**
Pooja Dave, BS; Jamshaid Mir, MD; Peter Tretiakov, BS; Tyler K. Williamson, MS, BS; Peter G. Passias, MD
- 10:56 - 11:00 **Paper #94: Optimizing Mental Health Conditions Prior to Adult Spinal Deformity Surgery: Does Preoperative Optimization Improve Surgical Outcomes?**
Pooja Dave, BS; Peter Tretiakov, BS; Jamshaid Mir, MD; Peter G. Passias, MD
- 11:00 - 11:04 **Paper #95: 20-year Clinical Outcomes of Cervical Disc Arthroplasty vs ACDF: A Prospective, Randomized, Controlled Trial**
Willa Sasso, BS; Jason Ye, MBA; Rick C. Sasso, MD
- 11:04 - 11:13 **Discussion**
- 11:13 - 11:15 **2024 IMAST Preview**
Eric O. Klineberg, MD
- 11:15 - 11:17 **2024 Annual Meeting Preview**
Ferran Pellisé, MD, PhD
- 11:17 - 11:20 **2024 Regional Courses Preview**
Saamyajit Basu, MS(orth), DNB(orth), FRCSEd
- 11:20 - 11:25 **Introduction of the President**
Marinus de Kleuver, MD, PhD
- 11:25 - 11:45 **Presidential Address**
Serena S. Hu, MD

Annual Meeting Preliminary Program

Friday, September 8, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

11:45 - 12:05

Lunch Pick-up (Members/Nonmembers)

12:05 - 13:35

Member Business Meeting (Runs concurrently to Lunchtime Symposium 4)

12:05 - 13:35

LTS 4 | Conservative Care for Adolescent Idiopathic Scoliosis: Brace and Scoliosis-specific Exercises

Moderators: Brian G. Smith, MD, Sabrina Donzelli, MD, Msc, Nikos Karavidas, PT, Eric C. Parent, PhD & James Wynne, CPO, FAAOP

12:05 - 12:11

Introduction by Chair

Brian G. Smith, MD

12:11 - 12:19

Developed Prognostic Models for Bracing Outcomes

Lori A. Dolan, PhD

12:19 - 12:27

Brace Types and their Biomechanics, Brace Classification

Sabrina Donzelli, MD, Msc

12:27 - 12:35

Brace Indications, Protocols and Management

Caglar Yilgor, MD

12:35 - 12:45

Discussion

12:45 - 12:53

Scientific Evidence for PSSE and Brace: What We Have and What is Missing

Eric C. Parent, PhD

12:53 - 13:01

PSSE Indications, Protocols and Program Characteristics

Nikos Karavidas, PT

13:01 - 13:09

PSSE – A Common EBM Approach

Sanja Shreiber, PhD

13:09 - 13:19

Discussion

13:19 - 13:29

Wrap Up

Michael J. Mendelow, MD

13:29 - 13:35

Closing

James Wynne, CPO, FAAOP

*This speaker was sponsored, in part, by the Sponseller Interdisciplinary Fund

13:35 - 13:55

Break

13:55 - 15:40

Abstract Session 7A & 7B (two concurrent sessions)

13:55 - 15:40

Abstract Session 7A | Adult Spinal Deformity II

Moderators: Ferran Pellisé, MD, PhD & Lawrence G. Lenke, MD

13:55 - 13:59

Paper #96: A Parameter Fixed to Poor Outcomes? A Detailed Analysis of High Pelvic Incidence in Adult Spinal Deformity Surgery

Peter G. Passias, MD; Tyler K. Williamson, MS, BS; Jamshaid Mir, MD; Pooja Dave, BS; Peter Tretiakov, BS; Stephane Owusu-Sarpong, MD; Jordan Lebovic, BA

13:59 - 14:03

Paper #97: Pseudarthrosis and Instrumentation Failure at the Pedicle Subtraction Osteotomy Site: Is a Multiple Rod Construct Necessary?

Karnmanee Srisanguan, BS; Tina Raman, MD

Program (topics, timing, and faculty) are preliminary and subject to change.

- 14:03 - 14:07 **Paper #98: A Machine-Learned Quantitative Classification of Asymptomatic Adult Spinal Sagittal Curvature: Comparison to Roussouly Types**
Saba Pasha, PhD; Kazuhiro Hasegawa, MD, PhD; Zeeshan M. Sardar, MD; Lawrence G. Lenke, MD; Hee-Kit Wong, FRCS; Jeffrey M. Hills, MD; Stephane Bourret, PhD; Dennis Hey, MD, MBBS, FRCS; Jean-Charles Le Huec, MD, PhD; Michael P. Kelly, MD; Nicholas Pallotta, MD, MS
- 14:07 - 14:16 **Discussion**
- 14:16 - 14:20 **Paper #99: 5-Year Outcomes of Prospective Evaluation of Elderly Deformity Surgery: A Multicenter International Study on Patients over 60 Years of Age**
Stephen J. Lewis, MD, FRCS(C); Sigurd H. Berven, MD; Christopher J. Nielsen, MD; Lawrence G. Lenke, MD; Christopher I. Shaffrey, MD; Marinus de Kleuver, MD, PhD; David W. Polly, MD; Ferran Pellisé, MD, PhD; Yong Qiu, PhD; Jonathan N. Sembrano, MD; Michael P. Kelly, MD; Benny T. Dahl, DMSc; Maarten Spruit, MD; Ahmet Alanay, MD; Kenneth M. Cheung, MD, MBBS, FRCS; Yukihiko Matsuyama, MD, PhD; Justin S. Smith, MD, PhD
- 14:20 - 14:24 **Paper #100: Urinary N-Telopeptide is Associated with Rod Fracture after Corrective Adult Spinal Deformity Surgery**
Jerry Y. Du, MD; Francis C. Lovecchio, MD; Gregory Kazarian, MD; David Kim, BS; Bo Zhang, MD; Robert Merrill, MD; John Clohisey, MD; Anthony Pajak, BS; Austin Kaidi, MD; Rachel L. Knopp, MPH; Izzet Akosman, BS; Mitchell Johnson, MD; Hiroyuki Nakarai, MD; Alex Dash, BS; Matthew E. Cunningham, MD, PhD; Han Jo Kim, MD
- 14:24 - 14:28 **Paper #101: Improvement of Pulmonary Function and Reconstructed 3D Lung Volume After Halo-Pelvic Traction Combined with Posterior Correction for Severe Rigid Spinal Deformity: A Multicenter Study**
Zhenhai Zhou, MD, PhD; Zhiming Liu, MD; Shengbiao Ma, MD; Zhongren Huang, MBBS; Wenbing Wan, MD, PhD; Zongmiao Wan, MD, PhD; Cao Yang, MD, PhD; Yingsong Wang, MD; Zhaohui Ge, MD; Kai Cao, MD, PhD
- 14:28 - 14:37 **Discussion**
- 14:37 - 14:41 **Paper #102: Development of AI Algorithm for Automatic Cobb Angle Measurement in Adolescent and Adult Spinal Deformities**
Shuzo Kato, MD; Takeo Nagura, MD, PhD; Yoshihiro Maeda, MD; Miitsuru Yagi, MD, PhD; Satoshi Suzuki, MD, PhD; Morio Matsumoto, MD, PhD; Masaya Nakamura, MD, PhD; Kota Watanabe, MD, PhD
- 14:41 - 14:45 **Paper #103: Spinopelvic Mismatch after Short Segment Lumbar Fusions Results in Increased Disability at Two Years Following Surgery**
Devon Lefever, MD; Caroline E. Drolet, PhD; Philip K. Louie, MD; Venu M. Nemani, MD, PhD; Rajiv K. Sethi, MD; Jean-Christophe A. Leveque, MD
- 14:45 - 14:49 **Paper #104: Pseudarthrosis and Rod Fracture at the Distal Levels of a Long Construct are Associated with Proximal Junctional Kyphosis after ASD Surgery**
Karnmanee Srisanguan, BS; Themistocles S. Protosaltis, MD; Thomas Errico, MD; Tina Raman, MD
- 14:49 - 14:58 **Discussion**
- 14:58 - 15:02 **Paper #105: Decreased Bone Mineral Density is Associated with a Higher Rate of Pseudarthrosis and Unplanned Revision after Adult Spinal Deformity Surgery at Three Year Follow Up**
Karnmanee Srisanguan, BS; Tina Raman, MD
- 15:02 - 15:06 **Paper #106: Patients Undergoing Adult Spinal Deformity Surgery Report More Improvement with Standing than Sitting**
Michael Longo, MD; Hani Chanbour, MD; Jeffrey W. Chen, BS; Steven G. Roth, MD; Amir M. Abtahi, MD; Byron F. Stephens, MD; Scott Zuckerman, MPH
- 15:06 - 15:10 **Paper #107: Combined Anterior-Posterior vs. All-Posterior Approach in Adult Spinal Deformity Surgery: Which Strategy Is Superior?**
Jeffrey Chen, BS; Hani Chanbour, MD; Graham W. Johnson, BA; Tyler D. Metcalf, BS; Alexander Lyons, BS; Soren Jonsson, MD; Steven G. Roth, MD; Amir M. Abtahi, MD; Byron F. Stephens, MD; Scott Zuckerman, MPH
- 15:10 - 15:19 **Discussion**
- 15:19 - 15:23 **Paper #108: The Ability of ChatGPT to Address Patient Concerns Regarding Adult Degenerative Scoliosis and the Possibility of AI-assisted Resources for Patient Education**
Justin Tang, BS; Ula Isleem, MD; Eric Geng, BA; Jun S. Kim, MD; Samuel K. Cho, MD

Program (topics, timing, and faculty) are preliminary and subject to change.

- 15:23 - 15:27 **Paper #109: Overcorrection in Sagittal Alignment Effect on Optimal Outcomes in Adult Spinal Deformity Patients**
Jamshaid Mir, MD; Pooja Dave, BS; Peter Treiakov, BS; Renaud Lafage, MS; Virginie Lafage, PhD; Tyler K. Williamson, MS, BS; Claudia Bennett-Caso, BA; Peter G. Passias, MD
- 15:27 - 15:31 **Paper #110: Association Between Elevated C-Reactive Protein and Operative Complications in Adult Spinal Deformity Surgery: An International Multicenter Study**
Mitsuru Yagi, MD, PhD; Christopher P. Ames, MD; Naobumi Hosogane, MD, PhD; Justin S. Smith, MD, PhD; Christopher I. Shaffrey, MD; Frank J. Schwab, MD; Virginie Lafage, PhD; Masaya Nakamura, MD, PhD; Shay Bess, MD; Kota Watanabe, MD, PhD; International Spine Study Group
- 15:31 - 15:40 **Discussion**

13:55 - 15:40

Abstract Session 7B | Adolescent Idiopathic Scoliosis and Adult Spinal Deformity Controversies

Moderators: Michael P. Kelly, MD & Marinus de Kleuver, MD, PhD

- 13:55 - 13:59 **Paper #111: The Effect of Traction and Spinal Cord Morphology on Intraoperative Neuromonitoring Alerts**
Evan Fene, MD; Lydia Klinkerman, BS; Charles E. Johnston, MD; Jaysson T. Brooks, MD; Megan E. Johnson, MD
- 13:59 - 14:03 **Paper #112: Vertebral Body Tethering for Lenke 1A Curves: The L4 Modifier Predicts Less Optimal Outcomes**
Kenneth Shaw, DO; Firoz Miyajni, MD; Tracey P. Bastrom, MA; Stefan Parent, MD, PhD; Peter O. Newton, MD; Harms Study Group; Joshua S. Murphy, MD
- 14:03 - 14:07 **Paper #113: Radiation Exposure in Navigated Techniques for AIS: Is There a Difference for Pre-operative CT vs. Intraoperative CT?**
Mikaela Sullivan, MD; Lifeng Yu, PhD; Beth Schueler, PhD; Ahmad Nassr, MD; Todd A. Milbrandt, MD, MS; A. Noelle Larson, MD
- 14:07 - 14:16 **Discussion**
- 14:16 - 14:20 **Paper #114: Can Use of a Stiffer Rod Obviate the Need for Posterior Column Osteotomy in Lenke I and II Curves? Prospective, Multi-center**
Luke Mugge, MD; Matthew E. Cunningham, MD, PhD; Dennis R. Knapp, Jr, MD; Shyam Kishan, MD; Mark Rahm, MD; Randolph Gray, MD; Laurel C. Blakemore, MD
- 14:20 - 14:24 **Paper #115: Mental Health Components in Adolescents are Associated with Onset of Back Pain during Adulthood: A Cohort of Non-operative Idiopathic Scoliosis with a Mean Follow-up of 9.8 years**
Kenney Ki-Lee Lau; Kenny Y. Kwan, MD; Jason Pui Yin Cheung, MD, MBBS, MS, FRCS; Karlen Law, OT; Kenneth M. Cheung, MD, MBBS, FRCS
- 14:24 - 14:28 **Paper #116: Vitamin D and Adolescent Idiopathic Scoliosis (AIS), Should we Stop the Hype? A Cross-sectional Observational Prospective Study Based on a Geometric Morphometrics Approach**
Jose María González-Ruiz, MS; Markus Bastir, PhD; Javier Pizones, MD, PhD; Carlos Palancar, MS; Viviana Toro-Ibacache, PhD; María Dolores García-Alfaro, MD, PhD; Lucía Moreno-Manzanaro, BS; Jose Miguel Sánchez-Márquez, MD, PhD; Nicomedes Fernández-Baillo, MD; María Isabel Perez-Nuñez, MD, PhD
- 14:28 - 14:37 **Discussion**
- 14:37 - 14:41 **Paper #117: Can an Immediate Increase of Standing Height, When Wearing a Corrective Scoliosis Brace, be Predictive of In-Brace Skeletal Correction?**
Anna Courtney, BSc (Hons); Sam Walmsley, BSc (Hons); Darren F. Lui, FRCS; Tim Bishop, FRCS; Jason Bernard, MD, FRCS
- 14:41 - 14:45 **Paper #118: Starting Young: Differences in Brace Compliance Between Juvenile and Adolescent Idiopathic Scoliosis**
Julianna Lee, BA; Kevin Orellana, BS; Lucas Hauth, BS; Wudbhav N. Sankar, MD; Jason B. Anari, MD; Patrick J. Cahill, MD; John (Jack) Flynn, MD

Program (topics, timing, and faculty) are preliminary and subject to change.

- 14:45 - 14:49 **Paper #119: Long-Term (>2yr) Complications after Adult Spinal Deformity Surgery: Survivor Analysis Focused on Patients without Early- or Mid-Term Complications**
Thomas Buell, MD; Andrew Legarreta, MD; Justin S. Smith, MD, PhD; Bassel G. Diebo, MD; Peter G. Passias, MD; Jeffrey L. Gum, MD; Christopher I. Shaffrey, MD; Shay Bess, MD; Eric O. Klineberg, MD; Lawrence G. Lenke, MD; Virginie Lafage, PhD; Renaud Lafage, MS; Nitiin Agarwal, MD; Han Jo Kim, MD; Themistocles S. Protopsaltis, MD; Gregory M. Mundis, MD; Robert K. Eastlack, MD; Michael P. Kelly, MD; Alan H. Daniels, MD; Justin K. Scheer, MD; Alex Soroceanu, MPH; Richard Hostin, MD; Khaled M. Kebaish, MD; Robert A. Hart, MD; Stephen J. Lewis, MD, FRCS(C); Frank J. Schwab, MD; Christopher P. Ames, MD; Munish C. Gupta, MD; David O. Okonkwo, MD, PhD; D.Kojo Hamilton, FAANS; Douglas C. Burton, MD; International Spine Study Group
- 14:49 - 14:58 **Discussion**
- 14:58 - 15:02 **Paper #120: Comparison of Multi-Level Low-Grade Techniques versus Three-Column Osteotomies in Adult Spinal Deformity Surgery: Does Harmonious Correction Matter?**
Peter G. Passias, MD; Tyler K. Williamson, MS, BS; Jamshaid Mir, MD; Pooja Dave, BS; Stephane Owusu-Sarpong, MD; Tobi Onafowokan, MBBS; Peter Tretiakov, BS; Jordan Lebovic, BA
- 15:02 - 15:06 **Paper #121: Corner Osteotomy: The More Efficient Technique for Deformity Correction of Adult Spinal Deformity in Comparison to Pedicle Subtraction Osteotomy**
Jung-Hee Lee, MD, PhD; Kyung-Chung Kang, MD; Ki-Young Lee, MD, PhD; Jaeho Kim, MD; Tae-Su Jang, MD; Won Young Lee, MD; Seong Jin Cho, MD; Cheol-Hyun Jung, MD; Gil Han, MD; Min-Jeong Park, PA
- 15:06 - 15:10 **Paper #122: Open Deformity Correction Has Greater Improvements in Spinopelvic Parameters and Lower Rates of Hardware Failure than Minimally Invasive Techniques**
Elliot Pressman, MD; Kelly Gassie, MD; Molly Monsour, BS; Deborah Liaw, BS; Puya Alikhani, MD
- 15:10 - 15:19 **Discussion**
- 15:19 - 15:23 **Paper #123: Correct Now or Wait? An Analysis of Comorbidity Burden and Optimization Thresholds in Surgical Adult Spinal Deformity Patients**
Peter Tretiakov, BS; Kimberly McFarland, BS; Pooja Dave, BS; Jamshaid Mir, MD; Andrew Chen, BS; Giorgos Michalopoulos, MD; Jordan Lebovic, BA; Renaud Lafage, MS; Virginie Lafage, PhD; Peter G. Passias, MD
- 15:23 - 15:27 **Paper #124: Crossing the Bridge from Degeneration to Deformity: When Good Outcomes Necessitate Sagittal Correction in Adult Spinal Deformity Surgery**
Peter G. Passias, MD; Tyler K. Williamson, MS, BS; Jamshaid Mir, MD; Pooja Dave, BS; Stephane Owusu-Sarpong, MD; Peter Tretiakov, BS; Jordan Lebovic, BA
- 15:27 - 15:31 **Paper #125: Pelvic Non-Response is Associated with Failure to Restore Low Lumbar Lordosis and a Higher Rate of Mechanical Complications in Adult Spinal Deformity Patients**
Tyler Metcalf, BS; Hani Chanbour, MD; Jeffrey W. Chen, BS; Graham W. Johnson, BA; Mason Young, MD; Mitchell Bowers, MD; Julian Lugo-Pico, MD; Amir M. Abtahi, MD; Scott Zuckerman, MPH; Byron F. Stephens, MD
- 15:31 - 15:40 **Discussion**

15:40 - 16:00

Refreshment Break

16:00 - 17:45

Abstract Session 8 | Early Onset Scoliosis, Kyphosis, Basic Science

Moderators: Mitsuru Yagi, MD, PhD & Kenneth M. Cheung, MD, MBBS, FRCS

- 16:00 - 16:04 **Paper #126: Serum Titanium Levels Remain Elevated but Urine Titanium is Undetectable in Children with Early Onset Scoliosis (EOS) Undergoing Growth-Friendly Surgical Treatment: A Prospective Study**
Kameron Shams, MD; Sahil Jha, BS; Jennylee Swallow, MS; Michelle S. Caird, MD; Frances A. Farley, MD; Matthew Stepanovich, MD; Noelle Whyte, MD; Ying Li, MD
- 16:04 - 16:08 **Paper #127: Screening MRI in Congenital EOS; Is it Safe to Delay Advanced Imaging to Decrease Early Anesthesia?**
Evan Mostafa, MD; Leila Mehraban Alvandi, PhD; Edina Gjonbalaj, BS; John B. Emans, MD; Paul D. Sponseller, MD, MBA; A. Noelle Larson, MD; Purnendu Gupta, MD; Jaime A. Gomez, MD; Pediatric Spine Study Group

Program (topics, timing, and faculty) are preliminary and subject to change.

- 16:08 - 16:12 **Paper #128: Smaller Curves in Juvenile Idiopathic Scoliosis Improve with Part-Time Bracing**
Christina C. Rymond, BA; Afrain Z. Bobby, MS, BS; Jacob Ball, MD; Alondra Concepción-González, BA; Kevin Lu, MS; Rishi Sinha, BA; Michael G. Vitale, MD; Benjamin Roye, MD
- 16:12 - 16:21 **Discussion**
- 16:21 - 16:25 **Paper #129: The Spring Distraction System for Growth-Friendly Surgical Treatment of Early Onset Scoliosis: Performance After >2 Years Follow-Up in a Prospective Clinical Trial.**
Casper Tabeling, MD; Justin V. Lemans, MD; Anouk Top, MD; Pauline Scholten; Hilde W. Stempels; Tom P. Schlösser, MD, PhD; René M. Castelein, MD, PhD; Moyo C. Kruyt, MD, PhD; Keita Ito, MD, PhD
- 16:25 - 16:29 **Paper #130: The Optimal Surgical Timing for Posterior-only Hemivertebra Resection in Children Younger than 10-years**
Ziming Yao, PhD; Xue Jun Zhang, MD
- 16:29 - 16:33 **Paper #131: Risk Severity Score (RSS) for Surgical Site Infection (SSI) is Associated with Length of Hospital Stay in Growth Friendly Index Surgeries for Early Onset Scoliosis (EOS)**
Alondra Concepción-González, BA; Rishi Sinha, BA; Christina C. Rymond, BA; Kevin Lu, MS; Afrain Z. Bobby, MS, BS; Hannah Lin; Peter F. Sturm, MD; Scott J. Luhmann, MD; Paul D. Sponseller, MD, MBA; John T. Smith, MD; Lindsay M. Andras, MD; Mark A. Erickson, MD; Benjamin D. Roye, MD; Michael G. Vitale, MD, MPH; Pediatric Spine Study Group
- 16:33 - 16:42 **Discussion**
- 16:42 - 16:46 **Paper #132: Traditional Growing Rod Lengthening Without Intraoperative Neuromonitoring: 20-year Experience with no Neurologic Deficits**
Tyler D. Metcalf, BS; Gregory A. Mencio, MD; Jeffrey E. Martus, MD; Craig Lauer, MD
- 16:46 - 16:50 **Paper #133: Outcomes of Growth-Friendly Instrumentation in Osteogenesis Imperfecta**
Daniel Badin, MD; Frederick Mun, BS; Behrooz A. Akbarnia, MD; Francisco Javier S. Perez-Grueso, MD; Paul D. Sponseller, MD, MBA; Pediatric Spine Study Group
- 16:50 - 16:54 **Paper #134: Outcomes from Surgical Treatment in Idiopathic Early-Onset Scoliosis: A Minimum 25-year Follow-up**
Patrick McCabe, MD; Martin Kelly, FRCS (Tr & Orth); Flavia Alberghina, MD, FEBOT; Patrick J. Kiely, FRCS (Tr & Orth); Patrick O'Toole, FRCS (Tr & Orth); Jacques Noel, FRCS (Tr & Orth); David P. Moore, FRCSI MCh; Caroline Goldberg, MD; Esmond E. Fogarty, FRCSI FRACS; Frank E. Dowling, FRCSI BSc; James F. Kennedy, MD, FRCS
- 16:54 - 17:03 **Discussion**
- 17:03 - 17:07 **Paper #135: What has Changed in the Last Ten Years for Spine Surgery Training? Residency and Spine Fellowship Program Directors Response to A Nationwide Survey 2013 vs 2023**
Alan Daniels, MD; Daniel Alsoof, MBBS; Bassel G. Diebo, MD; Christopher L. McDonald, MD; Andrew S. Zhang, MD; Craig P. Ebersson, MD; Carl B. Paulino, MD; Eren Kuris, MD; William F. Lavelle, MD; Christopher P. Ames, MD; Christopher I. Shaffrey, MD; Robert A. Hart, MD
- 17:07 - 17:11 **Paper #136: Prenatal Counselling for Spine Anomalies - Algorithm of Management - from the Genesis to Treatment / 'Spine Anomalies in Fetus': Diagnosis & Incidence – A Retrospective Study of 10,000 Consecutive Fetal Scans.**
Hriday Acharya, MBBS, MS; Abhay Nene, MD
- 17:11 - 17:15 **Paper #137: Experimental Study of the Asymmetric Growth of Vertebral NCS Modulated with MWA under CT-guided in Immature Porcine**
Tingbiao Zhu, MD; Jingming Xie, MD; Yingsong Wang, MD; Tao Li, MD; Zhiyue Shi, MD; Ying Zhang, MD; Zhi Zhao, MD; Ni Bi, MD; Quan Li, MD
- 17:15 - 17:24 **Discussion**
- 17:24 - 17:28 **Paper #138: Selecting "SSV-1" as Lower Instrumented Vertebra in Scheuermann's Kyphosis: A Prospective Study with a Minimum of 2-year Follow-up**
Dongyue Li; Zezhang Zhu, PhD; Yong Qiu, PhD; Zhen Liu, PhD
- 17:28 - 17:32 **Paper #139: Adding Satellite Rods to Standard Two-rod Construct in Posterior Correction of Scheuermann Kyphosis: Can it Promote Vertebral Remodeling?**
Xu Sun, MD; Yong Qiu, PhD; Zezhang Zhu, PhD; Sinian Wang, MD

Annual Meeting Preliminary Program

Friday, September 8, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

17:32 - 17:36 **Paper #140: Independent Variables Determining The Outcome Of Halo Gravity Traction (Hgt) In Rigid Severe Spinal Deformities - A Multi Centric Study Of 65 Patients**
Saumyajit Basu, MS(orth),DNB(orth), FRCSEd; Dheeraj M. Manikanta, M.S.,(Orthopaedics); Ajoy Prasad Shetty, MS Orth; S. Rajasekaran, MCh; Mainak Palit, PhD

17:36 - 17:45 **Discussion**

18:30 - 19:30

Presidential Reception (by invitation only)

19:30 - 22:00

Farewell Reception (ticket required)

Program (topics, timing, and faculty) are preliminary and subject to change.

08:00 - 10:10

Abstract Session 9 | Miscellaneous

Moderators: Serena S. Hu, MD & Laurel C. Blakemore, MD

- 08:00 - 08:04 **Paper #141: Chronic Absenteeism in Scoliosis Care: an Analysis of Missed Work and School**
Christina M. Regan, BS; Charles P. Nolte, -; Todd A. Milbrandt, MD, MS; Anthony A. A. Stans, MD; William Shaughnessy, MD; A. Noelle Larson, MD
- 08:04 - 08:08 **Paper #142: Assessing the Economic Benefit of Enhanced Recovery After Surgery (ERAS) Protocols in Adult Cervical Deformity Patients: Is the Initial Additive Cost of Protocols Offset by Clinical Gains**
Peter Tretiakov, BS; Pooja Dave, BS; Jamshaid Mir, MD; Jordan Lebovic, BA; Pawel P. Jankowski, MD; Peter G. Passias, MD
- 08:08 - 08:12 **Paper #143: Learning Curve for Navigated Screw Placement for Vertebral Body Tethering: 3D Imaging Analysis**
Chun-ho Chen, MD; A. Noelle Larson, MD; Todd A. Milbrandt, MD, MS; William J. Shaughnessy, MD; Anthony A. A. Stans, MD
- 08:12 - 08:21 **Discussion**
- 08:21 - 08:25 **Paper #144: Delayed Onset Neurologic Deficit Following Spinal Fusion for Pediatric Spinal Deformity**
Nicholas D. Fletcher, MD; Hilary Harris, BS; John S. Vorhies, MD; Sumeet Garg, MD; Jorge Fabregas, MD; Stephen G. George, MD; John Lovejoy, MD; Baron S. Lonner, MD; Brandon A. Ramo, MD; Viral V. Jain, MD; Jennifer M. Bauer, MD, MS
- 08:25 - 08:29 **Paper #145: Does Custom Instrumentation Reduce the Risk of Implant Failure in Adult Cervical, Spinal Deformity, or Degenerative Lumbar Pathology Patients?: A Multi-Center Predictive Analysis**
Peter G. Passias, MD; Peter Tretiakov, BS; Christopher J. Kleck, MD; David C. Ou-Yang, MD; Evalina L. Burger, MD; Afshin Aminian, MD; Meagan D. Fernandez, DO; Andrew G. King, MD; Dennis P. Devito, MD; Aubrie Nuccio, BS; Personalized Spine Study Group
- 08:29 - 08:33 **Paper #146: Patient Financial Burden in Surgical Treatment of Adolescent and Adult Spinal Deformity**
Wesley Durand, MD; Alekos A. Theologis, MD; Miguel A. Cartagena-Reyes, BS; Hamid Hassanzadeh, MD; Khaled M. Kebaish, MD; Paul D. Sponseller, MD, MBA; Amit Jain, MD
- 08:33 - 08:42 **Discussion**
- 08:42 - 08:46 **Paper #147: Compliance with the Best Practice Guidelines for Preventing Surgical Site Infections (SSI) in High-risk Pediatric Spine Surgery**
Alondra Concepción-González, BA; J. Manuel Sarmiento, MD; Benjamin D. Roye, MD; Christina C. Rymond, BA; Chinenye Ezeh, MPH; Hannah Lin ; Kevin Lu, MS; Afrain Z. Boby, MS, BS; Prakash Gorroochurn, PhD; Brice Ilharreborde, MD, PhD; Michael G. Vitale, MD
- 08:46 - 08:50 **Paper #148: Selection of the Lowest Instrumented Vertebra and Odds Ratio of Distal Complications for Lenke Type 5 Curves in Adolescent Idiopathic Scoliosis using a posterior approach: A Systematic Review and Meta-analysis**
Esteban Quiceno Restrepo, MD; Amna Hussein, MD
- 08:50 - 08:54 **Paper #149: Spinopelvic Failure After Adult Spinal Deformity Surgery: Incidence and Predictors**
Graham Johnson, BA; Hani Chanbour, MD; Jeffrey W. Chen, BS; Tyler D. Metcalf, BS; Steven G. Roth, MD; Soren Jonzzon, MD; Amir M. Abtahi, MD; Byron F. Stephens, MD; Scott Zuckerman, MPH
- 08:54 - 09:03 **Discussion**
- 09:03 - 09:07 **Paper #150: Outcomes for Nighttime Bracing in Adolescent Idiopathic Scoliosis Based on Brace Wear Compliance**
Karina A. Zapata, PhD, PT, DPT; Megan E. Johnson, MD; Donald Virostek, LPO/CPO; Anne-Marie Datcu, BS; Chan-Hee Jo, PhD; McKenzie Gunselman, CPO; John A Herring, MD
- 09:07 - 09:11 **Paper #151: The Addition of Daytime Schroth-based Physical Therapy to AIS Nighttime Bracing Reduces Curve Progression**
Karina A. Zapata, PhD, PT, DPT; Chan-Hee Jo, PhD; Donald Virostek, LPO/CPO; Amy L. McIntosh, MD

Annual Meeting Preliminary Program

Saturday, September 9, 2023

Program (topics, timing, and faculty) are preliminary and subject to change.

- 09:11 - 09:15 **Paper #152: Femoral Neck Version in the Spinopelvic and Lower Limb 3D Alignment. A Full-body EOS® Study in 400 Healthy Subjects.**
Marc Khalifé, MD, MS; Claudio Vergari, PhD; Guillaume Rebeyrat, MS; Emmanuelle Ferrero, MD, PhD; Pierre Guigui, MD; Ayman Assi, PhD; Wafa Skalli, PhD
- 09:15 - 09:24 **Discussion**
- 09:24 - 09:28 **Paper #153: Lumbar Lordosis Redistribution and Segmental Correction in Adult Spinal Deformity (ASD): Does it Matter?**
Bassel G. Diebo, MD; Alan H. Daniels, MD; Renaud Lafage, MS; Mariah Balmaceno-Criss, BS; D.Kojo Hamilton, FAANS; Justin S. Smith, MD, PhD; Robert K. Eastlack, MD; Richard G. Fessler, MD; Jeffrey L. Gum, MD; Munish C. Gupta, MD; Richard Hostin, MD; Khaled M. Kebaish, MD; Han Jo Kim, MD; Eric O. Klineberg, MD; Stephen J. Lewis, MD, FRCS(C); Breton G. Line, BS; Pierce D. Nunley, MD; Gregory M. Mundis, MD; Peter G. Passias, MD; Themistocles S. Protopsaltis, MD; Thomas J. Buell, MD; Justin K. Scheer, MD; Jeffrey P. Mullin, MD; Alex Soroceanu, MPH; Christopher P. Ames, MD; Lawrence G. Lenke, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Frank J. Schwab, MD; Virginie Lafage, PhD; Douglas C. Burton, MD; International Spine Study Group
- 09:28 - 09:32 **Paper #154: Three-Column Osteotomy for The Surgical Treatment of Dropped Head Syndrome Due to the Cervicothoracic-Upper Thoracic Proximal Junctional Failures Following Adult Spinal Deformity Surgery: Radiologic and Clinical Outcomes**
Baris Peker, MD; Ali T. Evren, MD; Hamisi M. Mraja, MD; Halil Gok, MD; Cem Sever, MD; Tunay Sanli, MA; Meric Enercan, MD; Selhan Karadereler, MD; Azmi Hamzaoglu, MD
- 09:32 - 09:36 **Paper #155: Does Preoperative Optimization of Psychiatric Conditions Improve Perioperative Outcomes in Adult Cervical Deformity Patients?**
Pooja Dave, BS; Jamshaid Mir, MD; Peter Tretiakov, BS; Peter G. Passias, MD
- 09:36 - 09:45 **Discussion**
- 09:45 - 09:55 **Presentation of the Hibbs Award(s)**
Rajiv K. Sethi, MD & Amy L. McIntosh, MD
- 09:55 - 10:05 **Transfer of the Presidency Introduction**
Serena S. Hu, MD
- 10:05 - 10:10 **Transfer of the Presidency Speech**
Marinus de Kleuver, MD, PhD

10:10 - 10:30

Refreshment Break

10:30 - 11:55

Abstract Session 10 | Neuromuscular and Miscellaneous

Moderators: Ahmet Alanay, MD & Ivan Cheng, MD

- 10:30 - 10:34 **Paper #156: Surgery for Neuromuscular Scoliosis Is Associated with Reduced Pulmonary Mortality in Children with Cerebral Palsy**
Matti Ahonen, MD, PhD; Ilkka J. Helenius, MD, PhD; Mika Gissler, PhD; Ira Jeglinsky-Kankainen, PhD
- 10:34 - 10:38 **Paper #157: Risk for Reoperation 10 years Following Spinal Fusion for Neuromuscular Scoliosis Associated with Cerebral Palsy**
Christopher Seaver, BS; Candice Legister, BS; Sara Morgan, PhD; Casey Palmer, BS; Eduardo C. Beauchamp, MD; Tenner Guillaume, MD; Walter H. Truong, FAOA; Steven E. Koop, MD; Joseph H. Perra, MD; Daniel Miller, MD
- 10:38 - 10:42 **Paper #158: 15 Years of Spinal Fusion Outcomes in Children with Cerebral Palsy: How Are We Doing?**
Daniel Badin, MD; Majd Marrache, MD; Suken A. Shah, MD; Amer F. Samdani, MD; Burt Yaszay, MD; Patrick J. Cahill, MD; Joann Hunsberger, MD; Paul D. Sponseller, MD, MBA; Harms Study Group
- 10:42 - 10:51 **Discussion**
- 10:51 - 10:55 **Paper #159: Spinal Fusion in Patients with Classic Amyoplasia and General Arthrogyposis**
Dietrich Riepen, MD; Emily Lachmann, BS; Brian Wahlig, MD; Karl E. Rathjen, MD

Program (topics, timing, and faculty) are preliminary and subject to change.

- 10:55 - 10:59 **Paper #160: Prospective Natural History Study of Idiopathic-like Scoliosis in Patients with 22q11.2 Deletion Syndrome, Starting Before its Pathological Onset**
Peter Lafranca, MD; Steven de Reuver, MD; Abdiqani Abdi, BS; Moyo C. Kruyt, MD, PhD; Keita Ito, MD, PhD; René M. Castelein, MD, PhD; Tom P. Schlösser, MD, PhD
- 10:59 - 11:03 **Paper #161: Defect in Extrinsic Pathway Impacts Clotting Efficiency in Neuromuscular Scoliosis**
Gregory Benes, BS; William G. Elnemer, BS; Amit Jain, MD; Dolores Njoku, MD; Paul D. Sponseller, MBA
- 11:03 - 11:12 **Discussion**
- 11:12 - 11:16 **Paper #162: Greater Implant Density Does Not Improve Pelvic Obliquity and Major Curve Correction in Neuromuscular Scoliosis**
Patrick Thornley, MD; Arlene Maheu, MD; Kenneth J. Rogers, PhD; Paul D. Sponseller, MD, MBA; Peter O. Newton, MD; Burt Yaszay, MD; A. Noelle Larson, MD; Joshua M. Pahys, MD; Peter G. Gabos, MD; M. Wade Shrader, MD; Suken A. Shah, MD
- 11:16 - 11:20 **Paper #163: What is the Optimal Curve Correction for Cerebral Palsy Patients Undergoing Posterior Spinal Fusion?**
Joshua M. Pahys, MD; Steven W. Hwang, MD; Amer F. Samdani, MD; Terrence G. Ishmael, MBBS; Paul D. Sponseller, MD, MBA; Peter O. Newton, MD; Harms Study Group; Suken A. Shah, MD
- 11:20 - 11:24 **Paper #164: Why are we Giving Additional Parenteral Antibiotics to Non-ambulatory Cerebral Palsy Patients with Isolated Acute Post-operative Fevers Following Posterior Spinal Fusion?**
Joshua Murphy, MD; Ryan Koehler, MD; Kenneth A. Shaw, DO; Daniel Raftis; Dennis P. Devito, MD; Robert W. Bruce Jr., MD; Michael L. Schmitz, MD; Numera Sachwani, BS; Jorge Fabregas, MD; Nicholas D. Fletcher, MD
- 11:24 - 11:33 **Discussion**
- 11:33 - 11:37 **Paper #165: Is Long-Term Follow-Up Required for Low-Grade Spondylolisthesis? A Prospective Study of 247 Children Followed until Skeletal Maturity**
Antoine Dionne, BS; Abdulmajeed Alzakri, MD; Hubert Labelle, MD; Julie Joncas, RN; Stefan Parent, MD, PhD; Jean-Marc Mac-Thiong, MD, PhD
- 11:37 - 11:41 **Paper #166: The Effect of Antibiotic-Impregnated Calcium Sulfate Beads and Medical Optimization Clinic Attendance on Surgical Site Infection Rate in High-Risk Scoliosis Patients**
Yashas C. Reddy, BS; Adam Jamnik, BA; David C. Thornberg, BS; Anne-Marie Datcu, BS; Emily Lachmann, BS; Megan E. Johnson, MD; Brandon A. Ramo, MD; Amy L. McIntosh, MD
- 11:41 - 11:45 **Paper #167: Does Laminectomy Adjacent to Instrumented Fusion Increase the Risk of Adjacent Segment Disease?**
Brandon Simonetta, MD; Biodun Adeniyi, MD, MS; Andrew Corbett, DO; Dennis G. Crandall, MD; Michael S. Chang, MD
- 11:45 - 11:55 **Discussion**
- 11:55 **Adjournment**

Upcoming 2023 Courses



SPINE DEFORMITY SOLUTIONS: **A HANDS-ON COURSE**

FROM THE SCOLIOSIS RESEARCH SOCIETY
IN COLLABORATION WITH CSRS-EUROPE

JUNE 14-17, 2023

Nijmegen, the Netherlands
www.srs.org/sds



SPINE DEFORMITY SOLUTIONS: **A HANDS-ON COURSE**

FROM THE SCOLIOSIS RESEARCH SOCIETY

OCTOBER 13-15, 2023

Hong Kong
www.srs.org/sds

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About SRS

OVERVIEW

Founded in 1966, the Scoliosis Research Society is an organization of medical professionals and researchers dedicated to improving care for patients with spinal deformities. Over the years, it has grown from a group of 37 orthopaedic surgeons to an international organization of more than 1,600 health care professionals.

MISSION STATEMENT

The purpose of the Scoliosis Research Society is to foster the optimal care of all patients with spinal deformities.

MEMBERSHIP

SRS is open to orthopaedic surgeons, neurosurgeons, researchers, and allied health professionals who have a practice that focuses on spinal deformity. Visit www.srs.org/professionals/membership for more information on membership types, requirement details, and to apply online.

PROGRAMS AND ACTIVITIES

SRS is focused primarily on education and research that include the Annual Meeting, the International Meeting on Advanced Spine Techniques (IMAST), Worldwide Courses, the Research Education Outreach (REO) Fund, which provides grants for spine deformity research, and development of patient education materials.

WEBSITE INFORMATION

For the latest information on SRS meetings, programs, activities, and membership please visit www.srs.org. The SRS Website Committee works to ensure that the website information is accurate, accessible, and tailored for target audiences. Site content is varied and frequently uses graphics to stimulate ideas and interest. Content categories include information for medical professionals, patients/public, and SRS members.

DEI STATEMENT

The SRS recognizes the benefit of bringing the knowledge, perspectives, experiences, and insights of a diverse membership to our society. We are committed to including outstanding members from the broad spectrum of human ethnicities, genders, sexual orientations, national origins, geographic backgrounds, abilities, disabilities, religious beliefs, and ages. We will create a culture that is equitable and inclusive, where everyone has a voice and differences are celebrated. By building a membership and leadership who better reflect the diverse communities we study and care for, we foster better and more equitable care for patients with spinal disorders.

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Join the conversation surrounding the SRS Annual Meeting by including **#SRSAM23** in your social media posts.



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SCOLIOSIS RESEARCH SOCIETY

555 East Wells Street, Suite 1100
Milwaukee, WI 53202
Phone: 414-289-9107
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www.srs.org

2022 Research Grant Recipients

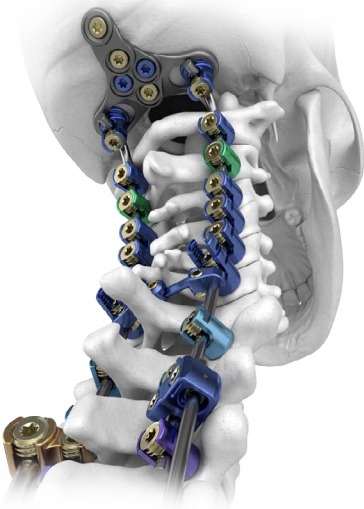
SRS Research Program Overview

The SRS Research funds are dedicated solely to research seeking improved treatments, the causes and possible prevention of spinal deformities. Since 1994, SRS has provided more than \$6.5 million for 197 spinal deformity research projects from the institutions all over the world, including the United States, Australia, Canada, China, France and Israel. These have included studies on improved spinal cord monitoring during surgery, brace treatment effectiveness, methods to improve fusion rates, and three large studies looking for the cause of idiopathic scoliosis.

In 2022, SRS received 57 grant applications, requesting a total of over \$5 million. The following 12 projects were selected for funding.

| Title of Project | Primary Investigator/ Location | Grant Duration | Type of Grant |
|--|--|----------------|--|
| Enhanced Care Delivery and Patient Experiences for Kids with Scoliosis: Smart Digital Strategies to Link Patients and Care Services | J. Paige Little PhD/ Brisbane, Australia | 1 year | SRS-NuVasive Standard Investigator Grant |
| The Effect of Arm Positions Used During Radiography on Frontal and Sagittal Parameters in Healthy and Adolescent Scoliosis Populations | Eric Parent PhD/ Edmonton, Canada | 2 years | Standard Research |
| Improving surgical outcomes of lumbar vertebral body tethering: A comprehensive biomechanical evaluation of patient-specific and surgical parameters | Carl-Éric Aubin PhD/ Montréal, Canada | 2 years | SRS-ZimVie Standard Investigator Grant |
| Can the novel Proximal Femur Maturity Index (PFMI) effectively guide the initiation of brace treatment in idiopathic scoliosis? | Wing Hang Prudence Cheung PhD/Hong Kong | 2 years | New Investigator |
| Spinal Pathology in Patients with Marfan or Loeys-Dietz Syndrome, Risk Factors for Severity and Progression | Susana Núñez-Pereira MD, PhD/Barcelona, Spain | 2 years | New Investigator |
| Examining HRQoL at 3-5 Years Postop in Early Onset Scoliosis: What are effects of complications and instrumentation choice accounting for C-EOS class? | Kenneth Shaw DO/Dallas, USA | 1 year | Resident/Fellow |
| The Use of Variable Pressure Technology to Increase Compliance and Efficacy of the Providence Brace in Adolescent Idiopathic Scoliosis | Christopher McDonald MD/ Providence, USA | 2 years | Resident/Fellow |
| Impact of Lumbosacral Anatomy and L5 Morphology on the Incidence of Pediatric Spondylolysis | Ryan Finkel MD/Los Angeles, USA | 1 year | Resident/Fellow |
| Prevention of Proximal Junctional Kyphosis with Bilateral Suture Anchor Pedicular Fixation in the UIV + 1 | Eren Kuris MD/East Providence, USA | 1 year | Exploratory Micro-Grant |
| The Biological Responses to Titanium Alloy Debris Using a Pediatric Animal Model | G. Ying Li MD/Ann Arbor, USA | 1 year | SRS-Cotrel Foundation Basic Science |
| Looking beyond the radiograph in AIS: Subject-specific modelling to investigate and predict the post-op spinal mobility after VBT and Spinal Fusion | Thijs Ackermans PhD/Leuven, Belgium | 2 years | Biedermann Innovation Award |
| Self-Perceived Health Status and Healthcare Consumption of Idiopathic Scoliosis Patients Treated More Than 20 Years Ago | Javier Pizones MD, PhD/ Madrid, Spain | 3 years | Directed Research |

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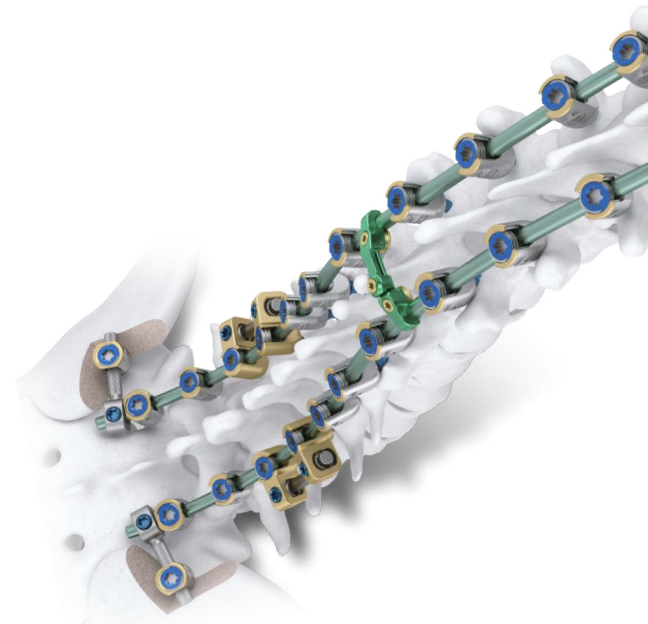
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Advanced Registration Deadline: August 10, 2023 (Registration will ONLY be accepted onsite after this date – no exceptions.)
 Completed registration forms should be emailed, faxed or mailed to the SRS Office. **Online registration** is available at www.srs.org/am23/registration.
 Email: meetings@srs.org | Fax +1 414-276-3349 | Mailing Address: Scoliosis Research Society, 555 E. Wells Street, Suite 1100, Milwaukee, WI, 53202, United States

DELEGATE INFORMATION

| | | | | |
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| Specialty: <input type="checkbox"/> Orthopaedic Surgeon <input type="checkbox"/> Neurosurgeon <input type="checkbox"/> Industry <input type="checkbox"/> Other: | | | | |

| Registration Class | ADVANCED REGISTRATION <i>On or before August 10, 2023</i> | ADD-ONS <i>for participation at the meeting in Seattle, Washington, USA</i> | | | |
|-------------------------------------|--|---|---|--|---------------------------------------|
| | | CME Add-On | | Non-CME Add-On | |
| SRS Member Physician | <input type="checkbox"/> \$ 1,050 | Hibbs Society Meeting Tuesday, Sept. 5 | Early Career Surgeon Session Thursday, Sept. 7 | Opening Ceremonies & Welcome Reception Wednesday, Sept. 6 | Farewell Reception Friday, Sept. 8 |
| SRS Member - Non-Physician | <input type="checkbox"/> \$ 600 | <input type="checkbox"/> \$ 50 | <input type="checkbox"/> \$ 0 | <input type="checkbox"/> \$ 0 | <input type="checkbox"/> \$ 50 |
| SRS Emeritus Member | <input type="checkbox"/> \$ 600 | | | | |
| Non-Member Physician | <input type="checkbox"/> \$ 1,400 | Welcome Reception: Wednesday, Sept. 6 Guest first/last name: _____ <input type="checkbox"/> \$ 100 | | Farewell Reception Friday, Sept. 8 Guest first/last name: _____ <input type="checkbox"/> \$ 150 | |
| Non-Member Non-Physician | <input type="checkbox"/> \$ 750 | | | | |
| Resident/Fellow/Medical Student | <input type="checkbox"/> \$ 550 | | | | |
| Delegate from Reduced Rate Country* | <input type="checkbox"/> \$ 550 | | | | |
| Industry Representative | <input type="checkbox"/> \$ 1,450 | | | | |

*For countries that qualify for reduced rate registration, visit <https://www.srs.org/am23/registration>

| HALF DAY COURSE | | |
|---|---|---|
| <i>Which Half Day Course do you plan to attend? (Thursday, September 7, 2023)</i> | | |
| <input type="checkbox"/> Pediatric: Neuromuscular Scoliosis From Head to Toe and Everything in Between | <input type="checkbox"/> Adult: I Understand the Numbers, but How Do I Actually Perform the Surgery to Obtain Optimal Results: Step by Step Correction of Spinal Deformity | <input type="checkbox"/> L.E.A.D SRS (Spaces limited) <input type="checkbox"/> I do not plan to attend a half day course |

Registration includes admission to the pre-meeting course, half-day course, lunchtime symposia, scientific sessions, Opening Ceremonies, Welcome Reception, and industry workshops at the meeting venue in Seattle, and access to the recorded content 4-6 weeks following the meeting.

Total Fees \$ _____ USD

Include me on any published delegate list, including the list provided to corporate supporters so that they may send me information about their products, services, and involvement at the meeting.

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Do you agree to SRS sending you e-mails for future meetings offered by SRS?

Cancellation Policy: Full refunds, less a 10% processing fee, will be granted for the cancellation meeting registrations until August 10, 2023. No refunds will be granted after August 10, 2023. Cancellation and refund requests should be sent in writing via email to meetings@srs.org or faxed to 414-276-3349. Delegates will receive a confirmation and refund within 14 days of receipt of their cancellation notice

Waiver: Submission of this registration form and payment of associated fee serves as agreement by the delegate to release the Scoliosis Research Society, the Hyatt Regency Seattle and their respective agents, servants, employees, representatives, successors, and assigns, from any and against all claims, demands, causes of action, damages, costs, and expenses, including attorneys' fees, for injury to person or damage to property arising out of attendance at the 58th Annual Meeting. In addition, the delegate hereby grants permission to use his/her likeness in a photograph or other digital reproduction in any and all of its publications, including website entries, without payment or any other consideration, agreeing that these materials will become the property of SRS which has the right to edit, alter, copy, exhibit, publish, or distribute this photo for purposes of publicizing its programs or for any other lawful purpose. Additionally, the delegate waives any right to royalties or other compensation arising or related to the use of the photograph.

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Completed registration forms should be emailed, faxed, or mailed to the SRS Office.

E: meetings@srs.org • F: +1 414-276-3349 • Scoliosis Research Society, 555 E. Wells Street, Suite 1100, Milwaukee, WI, 53202, USA

PAYMENT INFORMATION

Checks (U.S. funds drawn on a U.S. bank only) may be made payable and mailed to: Scoliosis Research Society • 555 E. Wells Street, Suite 1100 • Milwaukee, WI 53202

Check (U.S. funds drawn on a U.S. bank only)
 or provide credit card information: Visa MasterCard American Express

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Name (As it appears on card) _____

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City _____ State _____

Zip/Postal Code _____ Country _____

Signature (I agree to pay according to the credit card issuer agreement) _____

Corporate Partners

We are pleased to acknowledge and thank those companies that **provided financial support to SRS in 2023**. Support levels are based on total contributions throughout the year and include the Annual Meeting, IMAST, Global Outreach Scholarships, Edgar Dawson Memorial Scholarships, SRS Traveling Fellowships, and the Research Education (REO) Fund.

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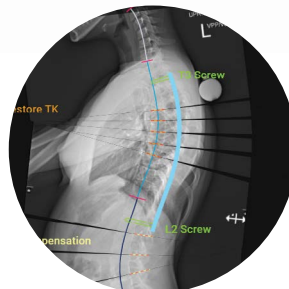
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